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CATALOGUE

OF THE

NEW HAMPSHIRE COLLEGE

OF

AGRICULTURE AND THE MECHANIC ARTS

DURHAM, NEW HAMPSHIRE

1905-1906

PRINTED AND BOUND BY
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CONCORD, N. H.

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COLLEGE CALENDAR.

1905.

Sept. 5–6. Examinations for admission begin Tuesday at 9 a. m.

Sept. 7. Regular college exercises begin Thursday at 10 a. m.

Oct. 11. Stated meeting of Trustees.

Dec. 22. First term ends Friday night.

WINTER VACATION.

1906.

Jan. 9. Second term begins Tuesday at 10 a. m.

Jan. 10. Stated meeting of the Trustees.

March 16. Second term ends Friday night.

SPRING VACATION.

March 27. Third term begins Tuesday at 10 a. m.

April 11. Stated meeting of Trustees.

June 3. Baccalaureate sermon, Sunday at 10.45 a. m.

June 4. Prize Drill 8 p. m. in the Armory.

June 5. Class Day.
Stated meeting of Trustees.
Glee Club concert at 8 p. m. in Thompson Hall.

June 6. Commencement Day, Wednesday.

SUMMER VACATION.

Sept. 4–5. Examinations for admission begin Tuesday at 9 a. m.

Sept. 6. Regular college exercises begin Thursday at 10 a. m.

Oct. 10. Stated meeting of Trustees.

Dec. 21. First term ends Friday night.

WINTER VACATION.

1907.

Jan. 8. Second term begins Tuesday at 10 a. m.

BOARD OF TRUSTEES.

His Excellency, Gov. JOHN McLANE, M. S., *ex officio.*
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EDWARD H. HANCOCK, B. S., *Assistant Professor of Mechanical Engineering.*

JOHN N. BROWN, *Instructor in Machine Work.*

IVAN COMINGS WELD, *Instructor in Dairying.*
HARRY F. HALL, *Instructor in Horticulture.*
A. R. ROSE, B. S., *Instructor in Chemistry.*
CHARLES BROOKS, M. S., *Instructor in Botany.*
*FRANK WENNER, B. S., *Instructor in Physics and Electrical Engineering.*
FRANK R. BROWN, B. S., *Instructor in Machine Work.*
WILLIAM O. ROBINSON, B. S., *Student Assistant in Chemistry.*
JOHN L. RANDALL, B. S., *Student Assistant in Zoölogy and Entomology.*
FRANK A. TINKHAM, B. S., *Foreman of Farm.*

MABEL E. TOWNSEND, A. B., *Associate Librarian, Registrar.*

EXECUTIVE OFFICE.

EDITH M. DAVIS, *Purchasing Agent.*
ALICE G. BAKER, *Bookkeeper.*

ENGINEER AND CURATOR OF BUILDINGS.

OSCAR W. STRAW.

*Resigned Nov. 1st, 1905.

AGRICULTURAL EXPERIMENT STATION.

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CHARLES W. STONE, A. M., *Secretary*	East Andover
Hon. WARREN BROWN . . .	Hampton Falls
Hon. N. J. BACHELDER, A. M., M. S.	East Andover
Pres. WILLIAM D. GIBBS, *ex officio* .	Durham

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FRED W. MORSE, M. S., *Chemist and Vice-Director.*
FRANK WILLIAM RANE, B. Ag., M. S., *Horticulturist.*
FREDERICK W. TAYLOR, B. Sc. (Agr.), *Agriculturist.*
E. DWIGHT SANDERSON, B. S., *Entomologist.*
EDWARD L. SHAW, B. Sc. (Agr.), *Associate Agriculturist.*
IVAN C. WELD, *Dairy Manufactures.*
HARRY F. HALL, *Associate Horticulturist.*

ASSISTANTS.

EDWARD HAROLD GOODNOW, B. S., *Assistant Chemist.*
CHARLES BROOKS, M. S., *Assistant Botanist.*
JOHN L. RANDALL, B. S., *Assistant Entomologist.*
FRANK A. TINKHAM, B. S., *Foreman of Farm.*
MABEL MEHAFFEY, *Stenographer.*

FOUNDATION AND ENDOWMENT.

The New Hampshire College of Agriculture and the Mechanic Arts was incorporated by the state Legislature in 1866, under the provisions of the act of Congress, approved July 2, 1862, entitled "An act donating public lands to the several states and territories which may provide colleges for the benefit of agriculture and the mechanic arts," the grant of land having been accepted by an act of Legislature, approved July 9, 1863.

The act of 1862 provides that the income from the investment of the money realized from the sale of the lands shall be appropriated "to the endowment, support, and maintenance of at least one college where the leading object shall be, without excluding other scientific and classical studies, and including military tactics, to teach such branches of learning as are related to agriculture and the mechanic arts, * * * in order to promote the liberal and practical education of the industrial classes in the several pursuits and professions of life."

The "Morrill Bill," which was approved August 30, 1890, and received the assent of the state by an act of Legislature, approved February 13, 1891, provides an appropriation for the more complete endowment and support of the colleges for the benefit of agriculture and the mechanic arts, established under the provisions of "the act of 1862."

The appropriation under the Morrill act is "to be applied only to instruction in agriculture, the mechanic arts, the English language, and the various branches of mathematical, physical, natural, and economic science, with special reference to their applications in the industries of life, and to the facilities for such instruction."

Under an act of Congress approved March 2, 1887, which received legislative assent August 4, 1887, was established

that department of the college known as the Agricultural Experiment Station, the purpose of which was "to aid in acquiring and diffusing among the people of the United States useful and practical information on subjects connected with agriculture, and to promote scientific investigation and experiment respecting the principles and applications of agricultural science."

Benjamin Thompson, who died January 30, 1890, was a resident of Durham, and a farmer by profession. He had at heart the agricultural interests of his native state, and in the furtherance of those interests he bequeathed to it at his death his whole estate with a few minor reservations.

Mr. Thompson's final statement of the object of his bequest was as follows: "My object being mainly to promote the improvement of agriculture, though willing that the college to be established should also provide for the mechanic arts, it is my will that the institution to be established by the state * * * shall be called and designated * * * The New Hampshire College of Agriculture and the Mechanic Arts, if that shall be the wish of the state; and that in addition to the instruction to be given therein, as provided by my said will, there shall be taught only such other arts or sciences as may be necessary to enable said state to fully avail itself of said donation of lands by the government in good faith, which two branches of instruction shall be the leading objects of said institution or college."

By the provisions of the will, the income from this source will not, however, become available until 1910. This endowment will amount at that time to nearly $800,000, the annual income from which will be about $32,000.

The state Legislature accepted the Thompson bequest March 5, 1891, and on April 10th of the same year appropriated $100,000 for buildings. Approximately $50,000 was realized from the sale of property and from other sources. In 1893 an additional appropriation of $35,000 was made by the state for completing and furnishing the

buildings. Accordingly in 1893 the college was moved from its first home at Hanover to its present location at Durham.

The general government of the college is vested in a board of thirteen trustees. The governor of the state and the president of the college are trustees, *ex officio;* the alumni of the college elect one trustee; and all other trustees are appointed by the governor of the state, with the advice and consent of the council.

The college is executing the trust reposed in it by giving instruction in the various courses described in this catalogue under the prescribed heads of "agriculture" and "the mechanic arts."

The income for the current year is from the following sources: From the federal land grant of 1862, $4,800; from the federal government under the act of 1887, $15,000, to be applied only for use of the Agricultural Experiment Station; from the same source under the act of 1890, $25,000; and from the state, $13,000; and from various other sources, about $5,000.

GENERAL INFORMATION.

New Hampshire College offers the following courses:

1. Agricultural Courses.
   - *a.* Four years' course.
   - *b.* Two years' course.
   - *c.* Ten weeks' course.
2. Mechanical Engineering Course.
3. Electrical Engineering Course.
4. Chemical Engineering Course.
5. General Course.

The college is a part of the public school system of the state. It stands, in its agricultural, mechanical engineering, electrical engineering, technical chemistry, and general scientific courses, in the same relation to the high schools that the high schools stand to the grammar schools, and that these in turn stand to the elementary schools. In other words, it is a continuation of the grades of the public school system of the state, with special reference to the industrial pursuits, and, in the courses that are provided as described elsewhere in this catalogue, it aims to give a practical training that shall fit the student to deal with the problems of life.

TUITION.

The tuition fee is $60 per year, although numerous scholarships give free tuition to many New Hampshire students.

SCHOLARSHIPS.

Conant Scholarships.—There are twenty-five Conant scholarships, each paying $40 and tuition, $60—total, $100. These are to be assigned under the following conditions:

1. They are to be given to young men taking an agricultural course.

2. Each town in Cheshire County is entitled to one scholarship, and Jaffrey is entitled to two.

3. Scholarships not taken by students from Cheshire County, and those in excess of the number of towns, will be assigned to agricultural students, and may be divided at the discretion of the president.

Senatorial Scholarships.—There are twenty-four senatorial scholarships,—one for each senatorial district. Each scholarship is to pay tuition, $60. Senatorial scholarships not filled can be assigned to students from other localities at the discretion of the faculty; they are open to students in all courses.

Early application should be made for these scholarships. They will be reserved for those respective towns and districts until August 1 of each year, after which they may be otherwise assigned for the year.

These scholarships are given for the purpose of aiding deserving students, and will be withdrawn from those who use tobacco or intoxicating liquors, or show themselves not deserving. Janitorships, work on the farm, etc., also furnish assistance to a considerable extent.

Valentine Smith Scholarships.—Through the generosity of the late Mr. Hamilton Smith of Durham the sum of $10,000 has been given to the college to establish the Valentine Smith scholarships.

"The income thus accruing to the college shall be given to the graduate of an approved high school or academy who shall, upon examination, be judged to have the most thorough preparation for admission to the college; *provided*,

"That this income shall be paid to the student to whom it is awarded, in eight semi-annual payments, at the time appointed for the payment of term bills; and

"That if the student receiving this scholarship shall at any time prove unworthy, in the judgment of the faculty, by reason of defective scholarship or character, he shall forfeit his claim to the student most deserving; and

"That if the student receiving this scholarship shall

cease to be a member of the college, the income from this fund, for the unexpired term, shall be awarded to the student most deserving in character and scholarship.''

These scholarships yield $400 annually or one hundred dollars to each holder.

Competitive examinations for this scholarship will be held at the college at the time of the entrance examinations in September, and at no other time.

Grange Scholarships.—Each subordinate and Pomona grange in New Hampshire has the privilege of appointing one student annually to a free scholarship in any of the four-year or two-year courses in the college, each appointment to be good for four years if in a four years' course, and for two years if in a two years' course. Students holding these scholarships will be relieved from paying the annual tuition fee of sixty dollars, but will not be relieved from payment of incidental or other fees. Scholarships may be forfeited at any time by misconduct of the student or by his failure in a sufficient number of studies, or by his inability to meet the entrance requirements. Women may hold these scholarships on the same terms as men.

The method of appointment is entirely at the option of the grange; it may be by election, competitive examination, or otherwise.

PRIZES.

I. *Bailey Prize.*—Dr. C. H. Bailey, of Gardner, Mass., and E. A. Bailey, B. S., of Keene, N. H., offer a prize of ten dollars for proficiency in chemistry.

II. *Erskine Mason Memorial Prize.*—Mrs. Erskine Mason, of Stamford, Conn., has invested one hundred dollars as a memorial of her son, a member of the class of 1893, the income of which is to be given, for the present, to that member of the senior class who has made the greatest improvement during his course.

ESTIMATE OF EXPENSES.

Tuition	Free	$60.00
Text-books	$10.00 to	30.00
Military uniform for new students	16.00 to	16.00
Drawing instruments and materials	7.50 to	30.00
Fees*	20.00 to	20.00
Room rent, including fuel	30.00 to	50.00
Board, $3 to $3.50 per week, for thirty-five weeks	105.00 to	122.50
Total	$188.50	$328.50

Room rent is estimated on the supposition that two students occupy the same room or suite of rooms.

Rooms may be obtained either furnished or unfurnished. Most of the rooms are in suites, and are in buildings provided with heating apparatus and bath-rooms.

The college has no rooms for students.

For further information, address New Hampshire College, Durham, New Hampshire.

COURSES FOR WOMEN.

Women attending the college may elect any course laid down in the curriculum, subject to the conditions prescribed for all students. They may omit manual labor on the farm and in the shop, and substitute other studies.

The general course, with its electives, is specially prepared for women, and is so planned that special courses may be arranged in literature, languages, history, philosophy, pedagogy, drawing, biology and manual training.

The courses in agriculture and chemistry afford opportunities for the study of the natural sciences, and the engineering courses offer exceptional advantages in mathematics and physics.

POST-GRADUATE STUDY.

The college offers opportunities for post-graduate study in agriculture, biology and chemistry.

*Includes all charges commonly considered extras, except those for breakage and damage to college property.

After the satisfactory completion of an appropriate amount of post-graduate work, advanced degrees will be given.

SPECIAL STUDENTS.

Special students shall be admitted only by vote of the faculty. Any person of mature years (not a candidate for a degree) may be so admitted upon presenting satisfactory evidence of his ability to complete the desired course of study.

REGISTRATION.

All undergraduate students who desire to attend the college during a given term are required to register at the president's office on or before 4 p. m. of the first day of such term. Every former student registered after the first day of any term shall be charged for such registration a fine of one dollar for the first day and fifty cents additional for each succeeding day, to be remitted only by the president upon presentation of a substantial excuse for the delay.

Students shall be admitted to classes only upon presentation of their registration card.

ATTENDANCE.

All students are required to attend chapel; all male students are required to attend military drill.

TERM BILLS.

Tuition and fees are payable in advance, in two equal instalments: one on the first day of the fall term and the other on the first day of the winter term, of each year. No student shall receive his registration card or attend classes until his bills are paid.

ELECTION OF STUDIES.

Every student shall, on or before the Saturday before the last in each term, notify in writing the secretary of the faculty of his elections for the term following. Any stu-

dent, who, having made his elections, desires to change, shall make application to the faculty in writing, with a statement in full of his reasons.

Any student who fails to fill out his elective slip on or before the date mentioned, shall pay a fine of one dollar before he can be registered for the studies of the next term, unless he has previously obtained from the secretary of the faculty a written excuse for delay.

AMOUNT OF WORK.

No student shall be permitted to carry less than 16 nor more than 21 credit hours per week of class-room work or its equivalent, exclusive of military tactics, without the consent of the faculty.

EXAMINATION ON ENTRANCE DEFICIENCIES.

Students conditioned on entrance examinations may have an opportunity to make up such deficiencies upon the two days preceding the beginning of the fall term, and upon the last Saturday of each term. A student who takes a deficiency examination upon an entrance subject, at any other time, must pay the college one dollar for each examination upon each subject.

Students who have any entrance condition outstanding at the beginning of the third year of residence at the college, or more than one at the beginning of the second year, will not be allowed to register until such conditions have been removed.

THESIS.

A thesis upon some subject connected with the work of the course taken is required of every candidate for a degree. The subject, together with a written approval of it by the head of the department within which it lies must be submitted to the president before the fifteenth day of December preceding graduation. The completed thesis shall be submitted to the head of the department concerned not later than the second Tuesday preceding Commencement. The

thesis shall be typewritten or printed upon standard thesis paper, 8½ by 11 inches, medium weight, neatly bound in black cloth, and gilt lettered on first cover with title, name of author, degree sought, and year of graduation. This bound copy shall be approved by the faculty, filed and left with the college librarian.

GRADUATION.

Those who complete a four years' course or its equivalent will be recommended for the degree of Bachelor of Science. No equivalent for one of the four years' courses will be accepted which does not contain an average of at least 18 credit hours per term, in addition to military drill, for four years, and all of the required subjects of the first two years which are common to all of the four-year courses.

The regular work of the senior class, including the regular final examinations, is completed at 4 p. m. on the Tuesday of the week preceding Commencement; and each member of the class may receive a statement of his standing at the office of the secretary of the faculty at 3 p. m. on the next day, Wednesday.

SUNDAY SERVICES.

Although the only church in Durham is nominally Congregational, it is attended by citizens of all denominations, and sectarian lines are never drawn. It is conveniently situated, and with its regular services, its Sunday-school, prayer-meetings and young people's meetings, it offers ample opportunity for religious observance.

SITUATION AND RAILROAD CONNECTIONS.

Durham is situated on the Western Division of the Boston & Maine Railroad, 62 miles from Boston, and about midway between Rockingham Junction and the City of Dover, being five miles from the latter place.

BUILDINGS.

THOMPSON HALL.

Thompson Hall, the main college building, has a length of 128 feet, exclusive of a *porte-cochère* 40 feet long, and a width of 93 feet in the widest part. It is built of granite and brick, and has three stories besides the basement.

The basement contains an armory, a locker room for athletic purposes, a shower-bath, a blower-room, with apparatus for controlling the heating and ventilation of the building, geological laboratory, a lavatory, and rooms used for storage.

One-half of the first floor is devoted to the library, which is provided with a large, well-lighted reading room for papers and magazines, a reference room for special work, a librarian's room, a delivery room, and shelf space for 50,000 volumes. The remainder of the first floor is used for offices, recitation rooms for mathematics and history, and a waiting room for women.

On the second floor are more offices, the botanical and zoölogical laboratories, the drawing-room and recitation rooms for biology, mechanical engineering, philosophy and modern languages.

On the third floor is the large hall used as an auditorium, two literary society rooms, and the bell-boy's room.

The building is lighted by gas and electricity, and provided with the most approved system of heating and ventilation.

MORRILL HALL.

This building was erected in 1902 at a cost of about $30,000. It is 110 feet long and 58 feet wide, comprising four stories, including the basement. It is plain and simple in outline, and gives the impression of strength and solidity.

The material is brick, laid in Flemish bond, with trimmings of the clear, almost white Suncook granite. These relieve and brighten to a certain extent the general effect of plainness and simplicity. The roof is of slate, and the construction throughout is designed to give the greatest possible security against fire. All the partition walls are of brick, and the steam for heating is taken from the boilers at the central station, near the Mechanical Building. The Johnson system of automatic temperature regulation has been installed. Adequate ventilation is secured throughout the building by means of a large fan in the basement. All the floors are of maple, except the basement, which is of cement. Only the ceilings of the rooms are plastered, the side walls being of bare brick, calcimined Indian red.

A vestibule, eight feet wide, runs through the centre of the building the long way on each floor, except the fourth.

In the south end of the basement there is a room 56 by 32 feet, which is used for the exhibition of the different makes of agricultural implements and tools. The north end of the basement is fitted up for a live stock judging room. On the basement floor there is also a lavatory, provided with wash-stands and shower-bath, a bulletin mailing room, a soil-storage room, a fan and heating-room and a janitor's room.

The first floor is occupied by the department of agriculture. It contains two class-rooms—one for agronomy and one for animal industry—a soil physics laboratory with a preparation room attached, an agricultural reading-room, a stenographer's room, the farm superintendent's room, and the offices of the professor and assistant professor of agriculture.

The second floor is occupied by the horticultural department. It contains one class-room, a pomological laboratory, a forestry laboratory, a herbarium room, a horticultural reading-room and the offices of the professor and assistant in horticulture. The second floor is also provided with a

refrigerator room, in which the fruits and vegetables used for laboratory work may be preserved. Both the first and second floors are provided with fireproof vaults in which important records and expensive equipment are kept.

CONANT HALL.

Conant Hall contains the laboratories and lecture-rooms for instruction in chemistry, physics, and electrical engineering. It is a substantial brick building, 92 by 70 feet, and three stories high, including the basement. It is heated by steam brought from the shops, lighted by gas and electricity and provided with a system of thorough ventilation. Water, gas, high pressure steam, hydrogen, oxygen, vacuum and blast are supplied through pipes wherever needed, and the lecture rooms in addition have switches controlling both dynamo and battery currents, and arrangements for stereopticon illustration.

The basement contains a small workshop, the battery, photometer, photographic and comparator rooms, a clock room protected by double walls against changes in temperature, an acid room and a water and gas laboratory provided with the necessary fixtures and appliances.

The first floor, with the exception of one room, is occupied by the physics department. It contains the mineralogical laboratory, which is provided with tile-covered desks and other facilities for blowpipe analysis; the junior physical laboratory; an apparatus room; a reading and reference room for physical and electrical books and periodicals; an electrical laboratory; and the physical lecture-room, which is provided with all necessary conveniences, as before mentioned. For optical experiments the room can be darkened by means of special window-shutters, operated from one of the lecture-desks. A stone pier between the two desks makes it possible to use delicate instruments.

The second floor is given up entirely to the chemical department. It contains storerooms, an organic laboratory, a qualitative laboratory, a private laboratory, a dark room

for polariscopic and spectroscopic work, a lecture-room provided with facilities as before described, a quantitative laboratory, and a room for the delicate chemical balances and most important reference works.

The laboratories are fitted up with the most modern accessories, and with special reference to the kind of work to be performed in each.

SHOPS.

These have been built in order to provide facilities for instruction in the working of wood and metals. The buildings are constructed on the "slow-burning" principle, with thick walls, and heavy, continuous plank floors. The rooms are all well lighted and well ventilated.

The main building is 42 by 106 feet, and two stories high, with a basement 31 by 42 feet. The basement is used as an engine room and laboratory. The largest room on the first floor is the machine shop, where there is opportunity for practice in the operation of working metals by cutting tools, both by hand-work and by machinery. On this floor a lavatory is provided. The second floor is mainly occupied by a wood-shop, in which the common branches of carpentry, joinery and pattern-making are taught. Practice is given in the use of carpenters' tools and in the care and operation of the machines of most general use in wood-working.

Joined to the main shop building and on a level with its basement is a one-story building, 40 by 100 feet, containing the boiler room, repair shop, forge shop, and foundry.

There are four boilers, aggregating 240 horse-power, which furnish steam to all the college buildings, wherever needed for heating or power. A brick chimney, 95 feet high, carries away the waste gases from the furnaces.

In the forge shop instruction is given in forging, welding, tempering and riveting, and in the foundry the student is taught to mold and cast from the various patterns made in the wood-shop.

NESMITH HALL.

Nesmith Hall, a brick building two stories in height, is used for the work of the Agricultural Experiment Station. It contains offices and working rooms, a reference library, and chemical, entomological, bacteriological and botanical laboratories.

DAIRY.

The dairy building is a wooden structure of one and one-half stories, with basement. It contains six rooms equipped for manual training in milk testing, milk and cream pasteurizing, cream ripening, butter-making and the care and management of dairy machinery.

The first floor is used for receiving milk and for the separators. On this floor is also the office of the instructor and the laboratory for milk testing. The basement contains the ripening vats, churns and refrigerators, together with the engine.

BARNS.

The dairy barn is a large wooden structure, erected in 1895 at a cost of about $10,000. The main portion is 45 by 100 feet, two stories high, and with a basement in which are box stalls, calf and sheep pens, a cold storage room, root cellar, feed, dressing and milk rooms. A story and a half L, 35 by 100 feet, with basement, is attached to the main structure. The first floor of the L is on a level with the basement of the main barn and contains stalls to accommodate 56 head of cattle. The basement of the L contains pig pens, while the loft is used for the storage of feed, fertilizers and machinery. With the exception of the space occupied by a granary, a 120-ton silo and a 12-foot driveway, the upper floors of the main barn are used entirely for hay and forage, there being capacity for about 175 tons.

A second barn of old-style building is used by the agricultural department for the storage of hay, implements and wagons and for stabling the department horses.

A third barn, 25 by 60 feet, recently remodeled, is used by the horticultural department for its horses and wagons and the storage of spraying machines and various garden implements.

GREENHOUSES.

The new range of greenhouses has been specially planned and built for carrying on modern and up-to-date work in greenhouse management and handicraft. There are seven distinct houses, besides a propagating hallway. Connected with the glass structure is a workroom, 20 by 30 feet, which also answers as an office for the florist, and is equipped with scales, seed-boxes and other accessories. The basement of the workroom, or potting house, is used for a boiler room and storeroom for potting soils. The attic has two good rooms, one of which is occupied by the greenhouse attendant. The whole system is heated by steam, the boiler being a Lord & Burnham Co. sectional. The houses are piped so that the temperature can be regulated for any kind of crop, and offer exceptional opportunities for experimental work. The main palm house and four of the lateral houses were built by the Lord & Burnham Co., greenhouse contractors, and are of steel superstructure. The other two, together with the passageways to the potting house, are constructed of cypress, with angle iron eaves plates and iron supports. One house is equipped for greenhouse management instruction and each student is given definite laboratory space and prescribed work. Two of the houses have ground beds and are adapted for forcing vegetables. The remaining houses have raised beds, excepting the centre of the palm house, which has a ground bed.

These houses are lighted with electricity and offer unusual facilities for instruction and experimentation. When students have completed the required greenhouse courses, they are prepared to take positions as florists or gardeners of estates, etc.

LABORATORIES AND EQUIPMENT.

AGRONOMY.

This department is provided with a collection of dried specimens of the different forage crops; the more important varieties of corn, wheat and oats; and with a large number of lantern slides, grass charts and other illustrative material. The soil physics laboratory is equipped with soil bins, a compacting machine, chemical and torsion balances, and various kinds of physical apparatus for the study of soils, including that for the determination of specific gravity and for the making of mechanical analyses.

The agricultural museum contains many of the latest models of the different makes of farm machinery, tools and appliances, including plows, cultivators, harrows, mowers, rakes, corn binders, manure spreaders, different kinds of cattle ties and various makes of patent wire fences.

The college farm, with its 300 acres of land, has a variety of soils and soil conditions suited to the growth of nearly all the important farm crops, and thus offers excellent opportunities for practical work and demonstration in the department of agronomy.

ANIMAL INDUSTRY.

For the various courses in animal industry an extended use is made of the live stock of the college farm. The dairy herd consists of representative animals of the following breeds: Ayrshires, Guernseys, Jerseys and Shorthorns. The college owns six head of horses representing the draft type, and to become acquainted with the trotting and thoroughbred types the students are taken to various stock farms where these types can be inspected and judged.

For the study of the different breeds of sheep and swine

the college flock of thoroughbred Southdowns and herds of medium Yorkshires and Berkshires are used. Representatives of other breeds are rented for practical study and judging.

In the new agricultural building a large room has been fitted up for the judging of live stock, instruments for precise measurements are provided and score cards with a scale of points for each kind of animal are used.

The class-room is provided with a stereopticon lantern and a large collection of lantern slides is used to show the leading individuals of several breeds of live stock. The herd books of the several breeds are made use of in familiarizing the student with methods of tracing pedigrees and the practices of breeders' associations.

HORTICULTURE.

The facilities for instruction in the various lines of horticulture have vastly improved during the past few years. The entire second floor of Morrill Hall is given up to this department and contains offices, lecture-room, laboratories, herbarium room, seminary and library room, and a cold-storage room. On the basement floor this department has also in conjunction with the agricultural department a photograph room, soil and carpenter's room, and an implement room. The lecture room is fitted up with a stereopticon lantern. The pomological and vegetable gardening laboratories are of original design and offer every facility for modern work. During the fall term over 100 varieties of apples are studied by the students. Persimmons and tropical fruits are received from Florida, grapes and pears from western New York, and other fruits, apples in particular, from Pennsylvania, West Virginia, New York, Ohio, Minnesota, Oregon, various parts of New England and Canada. Large numbers of varities of vegetables are grown in the experiment station trial grounds, and these offer exceptional opportunities for identification and study in the laboratory for sometime after field conditions have gone by.

The orchards, gardens and grounds also offer opportunities for demonstrating the theories advocated in the lecture-room. Many varieties of different kinds of fruits are to be found in the orchards. These are young, but coming into bearing. The plum orchard has 60 varieties in bearing. Grapes, peaches, apples, cherries and small fruits are also grown at the Experiment Station. Propagation of fruits, shrubs and flowering plants is practised. A fine collection of Vilmorin charts is owned by the department. The collection of lantern slides is continually being enlarged.

COLLEGE FOREST.

A beautiful tract of 60 acres of old forest growth is owned by the college. It is located close at hand and offers exceptional opportunities for studying forestry. The country about Durham presents forestry conditions typical of New England, and the transplanting of trees, sowing of seeds and general questions of forestry management may here be studied in Nature's laboratory.

DAIRY.

All available space in this building is filled with various forms of cream separators, churns, testing apparatus and other dairy appliances. Steam is supplied by the large boilers at the power-house. In addition to the product of the college herd, milk is received from about 25 farms in Durham and vicinity. Through this arrangement the college is able to furnish plenty of milk for practice work and to provide for a most thorough and practical training in dairy and creamery management.

MECHANICAL ENGINEERING.

The basement and westerly rooms of the main shop building are used as engine room and mechanical laboratories and contain a 40 horse-power engine which furnishes power for the shops and electric lighting of the college buildings; a shaft-governor, slide-valve engine; a direct acting steam

pump; and a large compound duplex pump. This pump receives water under a head of 15 feet through an eight-inch pipe from a reservoir one-half mile distant, and forces it through underground mains to the various hydrants and buildings or through nozzles for measurements during tests. It is fitted with indicator motions and other necessary equipment for complete duty tests. The pump with its long supply pipe, a 10-inch standpipe and a 6,000-gallon tank, furnishes apparatus for an extensive series of hydraulic experiments.

Among other apparatus is a 50,000-pound Olsen machine with the necessary tools and measuring instruments for tension, compression and transverse tests; a 2,000-pound wire machine; an indicator tester; a marine gas engine; a Westinghouse air-brake pump; steam and gas engine indicators; a surface condenser with a capacity of 2,000 pounds of steam per hour, fitted with a 5½ by 8 by 7 air pump; and the usual supply of scales, gauges, thermometers and small apparatus. The three sectional boilers and the 100 horse-power horizontal return tubular boiler, with the 95-foot brick stack are used for boiler tests and flue gas analysis by means of an Orsat gas apparatus, a pyrometer and thermometers reading to 1,000 F. The ventilating fans and engines of the various buildings, as well as the new engines at the creamery and in the electrical laboratory, are available for testing. Opportunity is given for the student not only to test the machine or engine, but to become familiar with its construction and operation.

In addition to the instruction given in the laboratory, excursions are made to various outside power plants, and, when practicable, tests are made, thus enabling the student to become familiar with various types of engineering practice.

WOOD-SHOP.

This occupies the larger part of the second story of the main building. It is supplied with benches and the neces-

sary tools to accommodate 20 students at one time. Other equipment consists of a circular saw, board-planer, buzz-planer, jig-saw, speed-lathes, a large pattern maker's lathe with molding and boring attachments. A stock and pattern room on the same floor provides storage for lumber, patterns and unfinished work. The course in woodwork consists of practice in carpentry, joinery, cabinet-making and turning. Much of the advanced work consists of making apparatus and cabinets for use about the college. Following this work is the course in pattern-making, special attention being given to methods of design.

MACHINE SHOP.

The equipment is as follows: seven engine lathes, a 14-inch by 6-foot speed-lathe, built by students; a vertical drill, built by students; a 30-inch Flather planer; a universal milling machine with gear-cutting and spiral attachments; shaper; power hack saw; 12 benches with vises, and a large number of small tools, including micrometer, calipers and gauges necessary for accurate work. The lathes in the wood-shop were built here, and several more are in process of construction.

FORGE SHOP.

This contains 13 Sturtevant down-draft forges with anvils and necessary tools. The blast to the forges is furnished by a No. 4 blower, and the smoke carried away by a 60-inch exhauster. These are driven by a 3 by 5 vertical engine. The student is taught the principles of forging, welding and tempering of iron and steel. Special attention is given to accuracy of dimensions as well as of shape and finish.

FOUNDRY.

The foundry is supplied with a furnace, molding benches, flasks and bench tools. Foundry work is taken in connection with the course in pattern making, and the student

molds and casts from the patterns he has constructed in the wood-shop. Castings are made in iron, brass and alloy, and tests are made on "test bars" of each.

PHYSICS AND ELECTRICITY.

The physical laboratory is equipped with a good collection of the usual apparatus for laboratory work and lecture-room illustration, to which will be continually added pieces purchased or made in the college shop.

In the junior laboratory of physics there has been added apparatus for studying absorption phenomena and the comparison of spectra of films, liquids, metals, etc.; for measuring the angles of crystals and indices of refraction; for verifying the laws of refraction and total reflection of light; for determining the moment of inertia of various forms of specimens.

In electricity and magnetism the equipment includes instruments of high precision and of the latest forms, such as: a magnetometer for studying the intensity of the earth's magnetism; a universal tangent galvanometer capable of assuming a variety of forms and measuring currents from a small fraction of an ampere to one hundred amperes; a high grade, four-spool Thomson reflecting galvanometer; a Ryan electrometer for tracing pressure and current waves; a standard ballistic galvanometer; an Ayrton & Perry's variable standard of self-induction, as well as others of less accuracy for elementary work; a complete photometer equipment for comparing incandescent and arc lamps, and the distribution of light from the latter for both open and inclosed arcs; a small, low-potential testing unit, consisting of a universal alternator belted to a direct current motor and capable of adjustment to be driven from either the direct or alternating side; a low-potential transformer, either side arranged to be connected to the universal alternator or to the secondary of the transformer on the lighting system; a bank of lamps for illustrating the various methods of distributing from mains for lighting systems, or afford-

ing loads in obtaining characteristics, efficiencies, etc.; and standard forms of voltmeters and ammeters.

For more strictly electrical engineering work, the department has the 500-light alternator used in lighting the college buildings, a direct current "exciter" dynamo, all the apparatus of a complete 55-light Edison isolated electric lighting plant, arc and incandescent lamps, and standard forms of voltmeter, ammeter and transformer.

In the dynamo laboratory the Westinghouse junior engine is capable of developing about 23-brake horse power under 100 pounds steam pressure. This engine, being on a practically independent line of steam pipe, is expected to maintain good speed regulation of the main line shaft to which it is belted and from which power is delivered to countershafts, and thence to the various dynamos and workshops of the department. This workshop is equipped with a good set of wood and metal working tools, and a 14-inch, 8-foot bed Flather engine lathe, with complete attachments; also, a small speed lathe for drilling and wood working purposes, a Union combination saw with scroll, moulding and boring attachments, and a small hand-driven metal planer.

CHEMISTRY.

The several chemical laboratories are modern in design, commodious and well equipped. Each is supplied with the latest forms of apparatus required for its particular work. Besides all necessary glass and porcelain ware, this includes water baths, drying ovens, combustion, muffle and assay furnaces, platinum dishes and crucibles, polariscope, spectroscope, balances, lantern and other lecture appliances, etc.

ZOOLOGY.

The zoölogical laboratory is well supplied with aquaria, microscopes, dissecting tools, charts, reference books and collections. The latter include a representative display of the birds of New Hampshire, and a very large collection of the insects of the state arranged in glass-covered boxes.

New tables have recently been added to the equipment of this laboratory.

BOTANY.

The botanical laboratory is supplied with a good herbarium, microscopes and the other necessary appliances.

SURVEYING.

The surveying instruments are sufficient in number and of the most approved pattern.

DRAWING.

At present rooms in Thompson Hall are devoted to the use of the drawing department. For free-hand model-drawing and for mathematical drawing there is a good supply of geometric models; and for free-hand industrial drawing the nucleus of a good collection exists, consisting of plaster casts of historic ornament, details of human form and antique sculpture, as well as vases and common objects. The models for machine drawing are few, but various machines in other departments are available for this work.

There is the beginning of a good working library.

MUSEUM.

The museum had for a nucleus the collections made during the state geological survey. To this additions have been made from various sources. Many specimens are being collected to illustrate zoölogy, especially entomology.

LIBRARY.

The library of the college consists of about 12,000 bound volumes and 6,000 pamphlets. A large part of these are new and expensive books, making good working libraries for the different departments of instruction, including economic science and English and American literature.

Students also have the free use of the Durham public library of about 8,000 well-selected volumes.

The college supports a reading-room, which is well supplied with the leading American and foreign periodicals.

FOUR YEARS' COURSES.

AGRICULTURAL COURSE.

This course is arranged especially for the general education and scientific training of students to fit them in various economic branches, such as agronomy, animal husbandry, biology, agricultural chemistry, entomology, forestry, horticulture, veterinary science, etc. Graduates are supposed to be qualified to take positions such as farm superintendents, foremen, stock raisers, dairy farmers, creamery managers, dairymen, superintendents of estates, parks or cemeteries, fruit-growers, gardeners, florists, nurserymen, landscape gardeners, foresters, poultrymen, ranchmen, etc.

It is expected that these same men will be equally prepared, depending upon individual tastes, to take positions as teachers and assistants in colleges and experiment stations.

The aim is to give a broad general foundation of pure and applied science. Laboratory methods are used in connection with lecture and recitation work. Seminary courses are also given, especially for seniors and advanced students.

BIOLOGICAL DIVISION OF THE AGRICULTURAL COURSE.

The biological division of the agricultural course is for the benefit of those students who desire to make a special study of some phase of natural history. It leads to such positions as teachers of botany and zoölogy in high schools and colleges, entomologists for experiment stations, state inspectors of nursery grounds, etc. During the first two years the student pursues the regular studies of the agricultural course, but in his junior year he begins to specialize in botany and zoölogy, a considerable proportion of his time during the rest of his course being given to these subjects. Students taking this course will elect, with the

advice of the instructors in charge, six hours per week of biological work in the junior year and seven hours per week during the senior year, exclusive of thesis. Two years of German required.

CHEMICAL DIVISION OF THE AGRICULTURAL COURSE.

The work of this division is especially intended to give a thorough grounding in the principles of chemistry as applied to agriculture and agricultural chemical analyses, and to train the student thoroughly in all kinds of manipulation required of the chemist in experiment stations, large dairy establishments, fertilizer works, etc.

Instruction is given mainly by personal supervision in the laboratory, accompanied by lectures, themes, recitations; and, as in the course in technical chemistry, the studies are arranged to meet the needs of the individual. Students wishing to take this course will elect, with the advice of the instructors in charge, six hours per week of chemical work during the junior year, and seven hours per week during the senior year. Two years of German will be required.

COURSE IN MECHANICAL ENGINEERING.

Mechanical engineering is concerned with the design, construction, care and operation of machinery.

The special studies are: mathematical, including a large amount of drawing; technical, pertaining directly to the professional work of the engineer; and general.

The study of the scientific principles underlying the work of the engineer is accompanied throughout the course by actual practice in mechanical operations and scientific research, by training in the use of tools for working wood and metals, and by experimental tests and demonstrations in the mechanical, chemical and physical laboratories.

ELECTRICAL ENGINEERING COURSE.

The electrical engineering course is intended to meet the demands of a young man fitting himself for practical and

professional engineering, in connection with the various applications of electricity.

By means of lectures, recitations and laboratory work, the subjects of the course are brought to the attention of the student in such a manner as to emphasize not only the present needs of the practician and engineer, but to give him the groundwork that will enable him to grasp and understand the constantly increasing number of problems that require solution.

The instruction aims to impart a complete practical and theoretical knowledge of the best modern types of electrical machines and appliances and the methods of designing, building and operating them.

The rapid progress in recent years in applying electricity to commercial uses, renders it difficult, if not impossible, for one without a technical education to gain prominence and be intrusted with its more responsible positions.

COURSE IN CHEMICAL ENGINEERING.

This course is intended to fit for the career of a professional chemist or chemical engineer, and to give a good foundation for original and independent chemical research.

Instruction is imparted by lectures, recitations and a large amount of carefully supervised laboratory work. The laboratory course is largely an individual one, and the work of each student is conducted with reference not only to the particular object he may have in view, but also to the acquirement of a broad knowledge of chemical science. The student is given a thorough training in German and French, to enable him to read with ease the chemical literature; a thorough grounding in mathematics, necessary for advanced theoretical chemistry or chemical engineering; a somewhat limited amount of special engineering work, both mechanical and electrical; and a thorough undergraduate training in theoretical and applied chemistry. He is encouraged to develop the power of solving chemical problems by independent thought through the aid of the reference works and

chemical periodicals which the library contains. The large and well furnished laboratories afford unusual facilities for chemical work.

GENERAL COURSE.

The general course in its original form was established in response to the demand that special provisions should be made for women. It has been broadened and improved by additional studies, and by an extensive scheme of elections, until in its present form it offers to either men or women "a liberal education upon a scientific basis."

MILITARY DEPARTMENT.

This department is in charge of an officer of the United States regular army, detailed by the war department, as professor of military science and tactics. Military instruction, which is required by law, is both theoretical and practical, the latter largely during the fall and spring terms, the former having special reference to the duties of the line.

The organization is a battalion of two companies, officered by cadets selected for character, soldierly bearing and efficiency. The federal government has furnished rifles and equipment for 200 men. Attention is paid to rifle practice, the government supplying ample ammunition and target materials, and the college a good range. The rolling country in the vicinity of the college furnishes the best opportunities for extended order drill and field exercises, the athletic field for close order drills and the new gymnasium and drill shed gives ample room for indoor work.

The cadets wear, whenever on military duty and may at other times provided the complete uniforms are worn, cadet gray uniforms with black trouser stripes, black braid on cuffs and collars of blouses and blue caps, army regulation. The letters N. H. C. are embroidered in gold on each side of blouse collar. The cost of such a uniform does not exceed $16 and the wearing of such does away with the necessity of purchasing a civilian suit for college use.

Service in this department is optional for members of the senior class, all other students, excepting those presenting surgeon's certificates of disability, are required to attend both drills and recitations.

Upon the graduation of each class, the names of such students as have shown special aptitude for military service are reported to the military secretary of the army and to the adjutant-general of the state. The names of the three most distinguished students in this department are inserted in the United States army register.

REQUIREMENTS FOR ADMISSION TO FOUR YEARS' COURSES.

All candidates for admission to college must present satisfactory testimonials of good moral character.

Candidates for admission to the freshman class must offer studies amounting to a total of 14 units.

AGRICULTURAL COURSE.

Candidates for admission who intend to take the Agricultural Course must offer ten units from required subjects and four units from optional subjects, according to the following statement:

Required Group A		3 units
" " B		1 unit
" " C		2 units
" " D	(Physics and Botany)	2 "
" " E		2 "
		10 units
	(Optional)	4 "

GENERAL COURSE.

Candidates for admission who intend to take the General Course must offer ten units from required subjects and four units from optional subjects, according to the following statement:

Required Group A		3 units
" " B		2 "
" " C		2 "
" " D	(Physics)	1 unit
" " E		2 units
		10 units
	(Optional)	4 "
Total		14 units

ENGINEERING AND CHEMICAL COURSES.

Required	Group	A	3 units
"	"	B	1 unit
"	"	C	3 units
"	"	D (Physics)	1 unit
"	"	E	2 units
			10 units
		(Optional)	4 "
Total			14 units

GROUP A.

English.—The New England College Entrance Requirements in reading and study,—three periods a week for four years.

Reading and Practice. Each candidate will be required to present evidence of a general knowledge of the substance of the books mentioned below and to answer simple questions on the lives of their authors. The examination will usually be the writing of one or two paragraphs on each of several topics. The treatment of these topics is designed to test the power of clear and accurate expression, and will call for only a general knowledge of the substance of the books. In place of this test the candidate may present an exercise book, certified by his instructor, containing compositions or other written work done in connection with the reading of the books.

In 1906, 1907 and 1908 it will be based upon: Shakespeare's Macbeth and The Merchant of Venice; The Sir Roger de Coverley Papers in The Spectator; Irving's Life of Goldsmith; Coleridge's The Ancient Mariner; Scott's Ivanhoe and The Lady of the Lake; Tennyson's Gareth and Lynette, Lancelot and Elaine, and The Passing of Arthur; Lowell's The Vision of Sir Launfal; George Eliot's Silas Marner.

Study and Practice. This part of the examination presupposes a careful study of the works named below. The

examination will be upon subject-matter, form and structure; and will also test the candidate's ability to express his knowledge with clearness and accuracy.

In 1906, 1907 and 1908 it will be based upon: Shakespeare's Julius Cæsar; Milton's L'Allegro, Il Penseroso, Comus, and Lycidas; Burke's Speech on Conciliation with America; Macaulay's Essay on Milton and Life of Johnson.

—3 units.

GROUP B.*

The work offered for each unit in History must consist of at least three exercises per week during one year of the high school course. If one unit is offered it may be for either American History or Ancient History. If two or more units are offered, one unit must be for American History and one for Ancient History. In case one year has been given to American History and two years to Grecian and Roman History, either with or without other Ancient History, credit will be given for three units. For details of preparatory work in History reference is made to "A History Syllabus for Secondary Schools, by the New England History Teachers' Association." Boston, D. C. Heath & Co., 1904.

1. American History and Civics.

The History requirements are covered by Channing's Students' History, or by Hart's Essentials, with the collateral work. The work in Civics must include at least a knowledge of the Constitution of the United States.

2. Ancient History.

Wolfson's Essentials or an equivalent, with the collateral work, or, the History of Greece and the History of Rome as given in works like Myers' History of Greece, Morey's Outlines of Greek

* A candidate may present either the first and third, or the first and second units of this group.

History, Allen's Roman People, Myers' Rome and Morey's Outlines of Roman History.

—1 unit.

3. English History.

The amount of English History required is represented by Gardiner's Students' History, by Larned's or Montgomery's History, or by Walker's Essentials, with the collateral work.

—1 unit.

4. Mediæval and Modern History.

Myers' Mediæval and Modern History, or an equivalent.

—1 unit.

GROUP C.

Algebra through quadratic equations, including radicals and fractional and negative exponents, and Plane Geometry.

—2 units.

SOLID GEOMETRY.

The equivalent of Wells' presentation.

—1 unit.

PLANE TRIGONOMETRY.

The equivalent of Wentworth's presentation.

—1 unit.

GROUP D.

PHYSICS.

The preparation required for entrance in Physics shall be an equivalent of 75 class exercises, one hour each in length.

When certificates are offered, they should state the number of exercises and time allotted to each exercise.

—1 unit.

BOTANY.

Gray's Lessons in Botany with a herbarium of 50 plants or Coulter's Plant Relations with laboratory work or an approved equivalent.

—1 unit.

ZOOLOGY.

Davenport's Introduction or an approved equivalent.

—½ unit.

PHYSICAL GEOGRAPHY.

Davis' Elementary or an approved equivalent.

—½ unit.

GEOLOGY.

Leconte's Compend or an approved equivalent.

—½ unit.

CHEMISTRY.

Elementary Inorganic Chemistry equivalent to the work covered in Remsen's Briefer Course, Storer & Lindsay's Manual, Witham's Elements or Newell's Descriptive Chemistry, accompanied in each instance with laboratory practice.

—½ unit.

GROUP E.

It is expected that the student will give two years to the preparation of the language offered. The requirements are as follows:

In German the student will be held responsible for the conjugations of strong and weak verbs, the declensions of articles, nouns, adjectives and pronouns, the elements of syntax, the uses of the modal auxiliaries and the translation from English into German of simple connected passages based on one of the books read. More attention, however, is paid to the translation from German into idiomatic English. The student should read at least 200 pages of German prose. The following books are recommended:

1. Kaiser and Monteser's Brief German Course (American Book Co.); Huss, German Reader (D. C. Heath & Co.); Andersen, Märchen; Brandt, German Reader; Lange's Beginners' German Book (Allyn & Bacon); Carruth's German Reader (Ginn & Co.).

2. Hillern, Höher als die Kirche; Riehl, Der Fluch der Schönheit; Storm, Immensee; Gerstäcker, Irrfahrten; Heine, Die Harzreise; Freytag, Aus dem Staat Friedrichs des Grossen.

—2 units.

In French the applicant is expected to be familiar with the whole subject of French grammar, and to be able to translate from English into French simple connected passages based on one of the books read. More attention, however, is paid to the translation from French into idiomatic English. The student should read at least 400 pages. The following books are recommended:

1. Laboulaye, Contes Bleus (Heath); Colin, Contes et Sayñetes (Ginn & Co.); Super, French Reader; Rollins, French Reader (Allyn & Bacon); Aldrich & Foster's French Reader (Ginn & Co.); Bruno's Le Tour de la France (American Book Co.).

2. Halévy, L'Abbé Constantin; Mérimée, Colomba; Erckmann-Chatrian, Le Conscrit de 1813; Dumas, La Tulipe Noire; Daudet, La Belle Nivernaise; Berthet, Le Pacte de Famine; Sand, La Mare au Diable.

—2 units.

GROUP F.

Students entering from approved schools may receive credit in their certificates for the following work in Latin or Greek.

LATIN.

Grammar and four books of Cæsar. Two years' work.

—2 units.

Virgil, six books.
Cicero, six orations.

—2 units.

GREEK.

Books I and II of Xenophon's Anabasis, Books III and IV of the Anabasis or their equivalent in other Attic prose, and 1,500 lines of Homer.

—2 units.

In place of examinations, certificates will be received from approved preparatory schools in New England. Approval of a school will be withdrawn whenever it appears that the work of the school does not reach the standard required by the college. No certificate will be accepted from a private tutor or instructor.

Certificates should meet the requirements *in full;* in case of exceptions the candidate will be examined on any requirement not covered by the certificate. If the certificate makes exceptions in more than a third of the work required for admission to any course, or if the certificate makes *any* exception in the case of a student who has not regularly graduated from an approved school, the certificate will not be accepted and the student will be examined on all the requirements.

Certificates will be accepted for that work only which has been done in the certifying school, or which is necessarily involved in the work done there; work done in the grammar school must not be certified unless reviewed in the high school.

Divided certificates from two or more schools will be accepted when the preparatory work has been done in more than one institution.

Certificate forms will be furnished upon application.

Candidates for advanced standing are also examined in the studies that have been pursued by the class which they propose to enter.

Examinations will be given, in the subjects presented for admission, on the Tuesday and Wednesday preceding the beginning of the college year. Candidates will present themselves with their credentials on the first day of the examination. See Calendar.

REQUIREMENTS FOR GRADUATION FROM FOUR YEARS' COURSES.

The degree of Bachelor of Science will be conferred upon those who complete a four years' course or its equivalent.

The regular work of the senior class, including the regular final examinations, is completed at 4 p. m. on the Tuesday of the week preceding Commencement; and each member of the class may receive a statement of his standing at the office of the secretary of the faculty at 2 p. m. on the next day, Wednesday. All work required for graduation must be completed by 6 p. m. of the Saturday of the same week.

Each candidate for a degree must prepare a thesis on some subject relating to the studies he has taken.

DESCRIPTION OF STUDIES.

AGRICULTURE.

The rapid development of the science of agriculture has made it necessary to divide the subject into several distinct branches or subdivisions, and to give to each of these branches a definite name. Accordingly the various agricultural studies will be found grouped under the following heads: Agronomy, or technical agriculture; Zoötechny, or animal industry; Agrotechny, or dairying; Rural Engineering and Farm Economy.

AGRONOMY.

Agriculture 1. Principles of Agriculture.

Lectures and recitations upon the elementary principles of agriculture, including a study of the soil, the plant and the animal, and the relations of each to the other. The course is given to the First Year Short Course Students only, and forms a basis for the succeeding courses.

Three exercises per week. F.

Agriculture 2. Farm Equipment.

Lectures and recitations upon the selection, planning and equipment of farms; fences and fencing material; drains and drainage; farm wells; objects, methods and implements of tillage; cattle ties, mangers, etc. Practical exercises in leveling and laying out of drains and in the preparation of plans and maps of farms. For Agricultural Juniors and Second Year Short Course Students.

Three exercises per week. F.

Agriculture 3. Soil Physics.

Lectures and recitations upon the formation, kinds and physical properties of soils; the movements and conservation of soil moisture; the relation of heat and air to soil; the nature and physical effects of tillage and fertilizers; laboratory work and

experimentation with soils to show the physical effects of different conditions and texture. For Agricultural Juniors and Second Year Short Course Students.

Three exercises per week. W.

Agriculture 4. Farm Crops.

Lectures and recitations upon the history, use, methods of culture, harvesting, storing and marketing of farm crops; practical work in judging and scoring the different varieties of grain, together with a study of growing and dried specimens of grasses, clover, rape and other forage crops. For Agricultural Juniors and Second Year Short Course Students.

Three exercises per week. S.

Agriculture 5. Manures and Fertilizers.

The course will consist of lectures and recitations, with a brief review of the principles of plant nutrition. There will be considered in detail the constituents of farm manures and chemical fertilizers; care of manures; different methods of application, and the modifications required by different soils and crops. Elective for Agricultural Seniors; required for Second Year Short Course Students.

Three exercises per week. S.

Agriculture 6. Origin of Soils and Soil Management.

Lectures and recitations upon the origin, distribution and classification of soils from a geological standpoint; their classification upon the basis of texture; soil maps and mapping; the improvement of soils by different methods of cultivation, drainage, rotation of crops and green-manuring; the establishment and maintenance of good tilth. Laboratory experimentation. Elective for Agricultural Seniors.

Two exercises per week. W.

ZOOTECHNY, OR ANIMAL INDUSTRY.

Agriculture 10. Principles of Breeding.

Lectures and recitations upon the laws of heredity, its operation under various conditions; value of selection in improving and maintaining a high standard of excellence in farm stock; variation, its extent and cause; methods of breeding, including

a discussion of inbreeding, crossing and grading. Practice will be given in tracing and writing pedigrees. For Agricultural Juniors.

Three exercises per week. W.

Agriculture 11. Veterinary Elements.

Lectures and recitations upon the construction and functions of the animal body; holding a post-mortem; simple farm medicines, modes of application; care of sick animals; breeding and some of its effects; common farm operations. For Agricultural Juniors and Second Year Short Course Students.

Four exercises per week. W.

Agriculture 12. Animal Diseases.

Lectures and recitations upon the common infectious and contagious diseases affecting farm animals; their causes and methods of treatment. This course must be preceded by Course 11. For Agricultural Juniors and Second Year Short Course Students.

Three exercises per week. S.

Agriculture 13. Stock Feeding.

Lectures and recitations upon the laws of nutrition; composition and digestibility of feeding stuffs; influence of feed on the animal body; preservation and preparation of coarse fodders, ensilage; grinding, steaming and cooking food. A study of the leading cereals and their by-products. Practice will be given in computing and compounding rations for various purposes. For Agricultural Juniors and Second Year Short Course Students.

Four exercises per week. S.

Agriculture 14. Animal Mechanics.

Lectures and recitations upon the principles of mechanics as applied to the animal machine; the proportions and conformation of horses for speed and for draft; modes of progression or the various gaits of the horse. Practical exercises in measuring animals and testing the value of given measurements for given purposes. Course to be given every other year, beginning with 1905. Elective for Agricultural Seniors.

Four exercises per week. F.

Agriculture 18. Animal Husbandry.

This course consists of lectures and recitations upon the different breeds of live stock; the principles of stock breeding and feeding; the care and management of stock and the raising of poultry. It is a general elementary course especially arranged for the Second Year Short Course Students.

Three exercises per week. F.

Agriculture 19. Breeds of Cattle and Sheep.

Lectures and recitations upon the origin, history, characteristics, adaptability and management of the different breeds of cattle and sheep. In the study of cattle the beef breeds are considered as to the demands of the market, and the preparation of cattle for sale and exhibition; the dairy breeds are studied from the standpoint of milk and butter production and the selection of individuals for the dairy herd.

In the study of sheep particular attention is given to their care under various conditions, the raising of early lambs and the different grades, uses and value of wool. One afternoon each week for judging the different breeds.

For Agricultural Sophomores and Second Year Short Course Students.

Three exercises per week. F.

Agriculture 20. Breeds of Horses and Swine.

Lectures and recitations upon the origin, history, characteristics and management of the different breeds. The breeding and classification of horses for the market; training and the proper methods of harnessing and hitching. The preparation of swine for exhibition; the influence of different kinds of food upon pork production. One afternoon each week for judging and scoring.

For Agricultural Sophomores and Second Year Short Course Students.

Three exercises per week. S.

Agriculture 21. Poultry.

This course consists of lectures and recitations upon the different classes and varieties of poultry; the subject of breeding and feeding; the location and building of poultry houses; a study of incubators and brooders; the shipping of poultry and eggs and the methods of preventing disease. Practice will be given in scoring some of the leading varieties.

Elective for Agricultural Seniors and Second Year Short Course Students.

Two exercises per week. W.

RURAL ENGINEERING AND FARM ECONOMY.

Agriculture 15. Agricultural Seminary.

This course consists of library and reference work and a study of current agricultural literature. Each student will prepare during the term a certain number of abstracts, reports of papers upon topics relating to agriculture. For Agricultural Seniors.

Two exercises per week. F.

Agriculture 16. Rural Architecture and Farm Mechanics.

Lectures and recitations upon the principles of construction of farm buildings; barns and silos; construction and maintenance of country roads; principles of draft; farm motors and machinery. Practical work in testing and comparisons of various makes and kinds of farm machinery. For Agricultural Seniors.

Three exercises per week. S.

Agriculture 17. History of Agriculture and Rural Economics.

Lectures and recitations upon the history of agriculture from early Egyptian to modern American; present agricultural methods and systems in various countries; cost and relative profits of the different systems of farm operations in the United States. For Agricultural Seniors.

Three exercises per week. S.

BOTANY.

1. Introductory Botany.

A study of the general structure and the life processes of plants by means of recitations and laboratory work. For First Year Short Course Students.

Three exercises per week. F.

2. Cryptogamic Botany.

Recitations and laboratory work on a number of lower forms of plant life. Open to First Year Short Course Students who have taken Course 1.

Two exercises per week. W.

3. Structural Botany.

A study of structure and reproduction in the higher plants; plant societies and plant families. Recitations, lectures and laboratory work. Open to First Year Short Course Students who have taken Course 2.

Three exercises per week. S.

4. Plant Diseases.

A study by means of lectures, recitations and laboratory work of some of the more important fungous diseases and the means of preventing their injuries. For Second Year Short Course Students.

Three exercises per week. F.

5, 6, 7. Advanced Botany.

Three exercises per week for the senior year. Arranged to suit individual needs of those who have taken Courses 8 to 13.

8. Plant Physiology.

Lectures and laboratory studies on plant structures as related to plant activities. For Agricultural and General Freshmen.

Three exercises per week. S.

9. Cryptogamic Botany.

A study of a representative series of cryptogams, beginning with the lower and advancing to the higher forms. Special attention will be given to parasitic fungi. For Agricultural and General Sophomores.

Three exercises per week. F.

10. Plant Morphology.

A continuation of the series of plant forms begun in course 6, including a study of vascular cryptogams, gymnosperms and an-

giosperms. Lectures and laboratory studies. Open to students who have completed Courses 5 and 6.

Three exercises per week. W.

11. Ecology and Taxonomy.

A study of the higher plants represented in the local flora, with reference to their environment; plant societies and plant families. Lectures, laboratory and field work. Open to students who have taken Course 7.

Two exercises per week. S.

12. Mycology.

A study of representative groups of fungi, including the bacteria; culture methods and pathological work with fungous diseases. Lectures, laboratory and field work. Open to students who have completed Course 8.

Three exercises per week. F.

13. Histology.

A minute study of plant cells and plant tissues; starches, aleurones and other cell contents; use of reagents and stains; cutting and mounting of sections. Lectures and laboratory work. Open to students who have completed Course 8.

Three exercises per week. W.

14. Advanced Physiology.

Lectures and experimental work on absorption, nutrition, growth, respiration, irritability and the influences that affect them. Open to students who have completed Course 8.

Three exercises per week. S.

CHEMISTRY.

1. Inorganic Chemistry.

Lectures and recitations on general and theoretical chemistry, illustrated by experiments, charts, specimens, lantern views, etc. Solutions of chemical problems will be required. Required of all Freshmen.

Three exercises per week. F.

2. Inorganic Chemistry.

Course 2 is a continuation of Course 1, but the time will be mainly spent on the metallic elements, their metallurgy, salts, etc.

Open only to students who have completed Course 1.

Three exercises per week. W.

3. Organic Chemistry.

Course 3 will consist of lectures and recitations on the chemistry of the carbon compounds, together with the study of their properties. For Agricultural and Chemical Freshmen. Elective for General Freshmen.

Open only to students who have completed Courses 1 and 2.

Three exercises per week. S.

4. Qualitative Chemical Analysis.

Course 4 consists of laboratory practice, with occasional lectures. The student is expected to become proficient in the separation and detection of the common acids and bases and to keep a full set of notes. He will have practice in the writing of reactions and will fill out numerous slips containing questions bearing upon his work. For Chemical Sophomores.

Agricultural and General Sophomores, three exercises per week F. and W.

Open only to students who have completed Course 1.

Five exercises per week. F.

5. Qualitative Chemical Analysis.

A shorter course arranged especially for Engineering Sophomores.

Open only to engineering students who have completed Course 1.

Two exercises per week. F. and W.

6. Chemistry of Plant Growth.

The composition of plants at different stages of growth and the conditions necessary for their development. This subject

must be preceded by Chemistry Courses 1, 2 and 3. For Agricultural and Chemical Sophomores; elective for General Juniors.

Three exercises per week. F.

7. Chemistry of Food and Nutrition.

These subjects include the composition of foods and the animal body; the assimilation of the former by the latter and the principles underlying a rational diet. This subject should be preceded by Course 6. For Agricultural and Chemical Sophomores; elective for General Juniors.

Two exercises per week. W.

8. Organic Reactions.

Recitations and laboratory practice on qualitative organic analysis and reactions. For Chemical Sophomores.

Open only to students who have completed Course 3.

Two exercises per week. S.

9. Organic Chemistry.

Course 9, for Juniors in the Chemical Division of the Agricultural Course, and in the Chemical Engineering Course, consists of laboratory practice by the students in preparing and purifying products relating to their respective lines of work.

Open only to students who have completed Course 3.

Two exercises per week. F.

10. Quantitative Analysis.

A preliminary course in quantitative analysis to familiarize the student with the general methods of chemical manipulation. For Chemical Sophomores. Elective in the general course in Sophomore, Junior and Senior years.

Open only to students who have completed Chemistry 4.
Seventy exercises. Number per week varies with course.

11. Advanced Quantitative Analysis.

Course 11 is arranged for students of the Chemical Courses, and is intended to fit them for work in the laboratories of agri-

cultural experiment stations, fertilizer works, iron works, sugar refineries, etc., and for the duties of the public analyst. This course will be made to fit the end which each has in view, and will be largely an individual one. For those students in the Chemical Division of the Agricultural Course the analyses made will tend in the main toward agricultural products, fertilizers, mucks, marls, manures, dairy products, waters, foodstuffs, sugars, etc. For the student wishing to enter metallurgical works, the analyses will be in the main upon iron, steel and other metals, ores, limestones, slags, alloys, fuels, etc. As a preparation for the study of medicine, work will be done on poisons, foods, drugs, urine, etc. Other lines will be arranged to meet the wants of the individual student. Each student will be given some practice in all of the branches of agricultural, metallurgical, medical, sanitary and industrial chemistry, in order to lay a foundation for any future work which may be required of him. A short course in gas and oil analysis will also be provided. For Chemical and General students.

Open only to students who have completed Course 10.
Number and time of exercises varies with the course.

12. Chemical Journals, Methods, etc.

The work consists of the study of current chemical literature, which is mainly in the German language, with recitations once a week throughout the year. Each student will be expected to prepare abstracts, reports, criticisms, etc., upon assigned articles. For Chemical Seniors.

Open to students who have begun Course 11.
One exercise per week through the year.

13. Industrial Chemistry.

Course 13 consists of lectures on chemical manufactures, such as sugar, sodium carbonate, fertilizers, sulphuric acid, glass, matches, paints, dyes, soaps, illuminating gas, petroleum, etc. The lectures will be illustrated by lantern views; and trips to the leading New England cities, to examine important chemical manufactures, will be taken as far as practicable. For Chemical Juniors.

Open only to those who have completed Courses 1 and 2.

Two exercises per week. W.

14. Metallurgy.

Course 14 consists of lectures describing the processes employed in the smelting of the ores of iron, lead, copper, zinc, silver, gold, etc., and upon the methods used in refining these metals. The lectures are illustrated by stereopticon and by specimens of metallurgical products. For Chemical Juniors.

Open only to those who have completed Courses 1 and 2.

Two exercises per week. S.

15. Physical Chemistry, Lectures.

The work consists of advanced study of chemical theory. Practical experiments will be performed, with the aid of the student in the determination of vapor density, molecular weights, specific heat, etc.; and the study of isomorphism, diffusion of gases, solutions, ionization, electrolysis, molecular and atomic volume, thermo chemistry, equilibrium, the phase rule, etc., will take up much of the time.

Course 15 comes in alternate years with Course 13 and is open to students who have completed Courses 1, 2 and 11.

Three exercises per week. W.

16. Physical Chemistry, Lectures.

A continuation of Course 15, and is given in alternate years with Course 14.

Three exercises per week. S.

17. Agricultural Analysis.

This course is arranged especially for students of the Agricultural Course, and consists mainly of the quantitative determination of the constituents of milk, butter, fertilizers, grain, etc.

Open only to students who have completed creditably the work of Courses 1, 2, 3 and 4 or 5.

Three exercises per week through the year.

18. Metallurgical Analysis.

This course is arranged for the students of the engineering departments who may elect the same, and consists mainly of the

quantitative determination of ores, slags, metals, alloys, fuels, etc.

Open only to students who have completed creditably the work of Courses 1, 2, 3 and 4 or 5.

Three exercises per week through the year.

19. Assaying. *Ten exercises.*

A course in the fire assay of gold and silver ores.

Open only to students who have taken Courses 10 or 18.

20. Thesis.

The work of the last two terms of the Chemical Engineering Course is given up to the special study of some selected subject in any branch of chemical science and the student is required to present a thesis showing him to be capable of independence of thought.

21. Chemical Research.

Especially arranged for students of the Chemical Engineering Course who are in advance of their course.

22. Elementary Applications.

An elementary course arranged for the First Year students in the Short Course in Agriculture with special reference to the elements of plant food, composition of fertilizers, elements subject to exhaustion in soils, etc.

Three exercises per week. S.

DAIRYING.

1. Milk and Milk Testing.

Lectures and recitations on the secretion, nature and composition of milk, its uses and value as an article of food. The causes and conditions influencing the quality of milk and the care of milk on the farm. The principles of the various tests and their application on the dairy farm and in the creamery or milk inspector's laboratory. For Agricultural Juniors.

Three exercises per week. F.

2. Dairy Bacteriology.

Lectures, recitations and demonstrations covering the more important facts in the relation of bacteria to dairying. Instruction and practice in pasteurizing milk and cream for market and for butter-making; also in making and using starters, and ripening cream. For Agricultural Juniors and students in ten weeks' course in Dairying.

Two exercises per week. W.

3. Dairy Machinery.

Lectures on the construction, operation and care of dairy and creamery appliances. Each student is required to take apart and assemble leading makes of cream separators and to operate them carefully and efficiently, and present a written description of each, with a record of capacity and efficiency under his management. For Agricultural Juniors and Two-year Students.

Open to those who have completed Course 1.

Three exercises per week. S. and F.

4. Butter-making.

Text-book study, recitations and lectures are supplemented by practice in the creamery. The student is trained to perform all parts of the work and to understand thoroughly the details which make possible the production of fine butter. For Agricultural Seniors.

Open to those who have completed Courses 1 and 3.

Three exercises per week. F.

5. Cheese-making.

A course of lectures will be given covering the details of manufacture, curing and marketing of the more important kinds of cheese. The course will cover work done in European countries as well as that done in Canada and the United States. For Agricultural Seniors.

Three exercises per week. W.

6. Creamery and Dairy Management.

Students are taught the method of keeping creamery and dairy accounts and will be required to present sample accounts cover-

ing various periods. Plans of dairy buildings, creameries and cheese factories are also required, with estimates for building and equipment. For Agricultural Seniors.

Open to those who have completed Courses 1-4.

Three exercises per week. S.

7. Milk and Milk Testing.

The same as Course 1. For First Year Two-year Students.

Five exercises per week. S.

8. Practical Work.

For students in ten weeks' course in Dairying.

Five exercises per week. W.

9. Dairy Machinery.

Lectures on the construction, operation and care of dairy and creamery appliances. For students in the ten weeks' course in Dairying.

One exercise per week. W.

10. Butter-making.

Text-book study, recitations and lectures. For students in the ten weeks' course in Dairying.

One exercise per week. W.

DRAWING.*

These courses are of an industrial nature and include both free-hand and mathematical branches of this subject.

The work of the first two terms is required of all regular students in four years' courses.

The advanced mathematical and machine drawing is prescribed for engineering courses.

The advanced free-hand drawing is elective and may be taken only by those with adequate preparation.

*Do not purchase drawing instruments or materials until you have consulted the instructor as to what is necessary. Students intending to take an engineering course should purchase high grade instruments.

19. Industrial Drawing.

Free-hand lettering, free-hand drawing, use of instruments, mathematical drawing, inking, tinting, tracing and blue-prints. For all Freshmen.

Two exercises per week. F.

20. Mechanical Drawing.

Systems of object drawing; orthographic projection; isometric drawing; mechanical perspective; shades and shadows. For all Freshmen.

Two and one-half exercises per week. W.

NOTE.—Alternating with shop-work on Wednesdays.

21. Descriptive Geometry.

Recitations and drawing exercises in the solution of geometrical problems by orthographic projection.

For Engineering Freshmen. Elective for General Course Freshmen.

Three exercises per week. S.

22. Free-hand and Mechanical Drawing.

For all Freshmen not taking Drawing 21.

Three exercises per week. S.

23. Descriptive Geometry.

Continuation of 21. Practical problems on bridge beams, rafters, piping, etc.

For Engineering Sophomores. Elective for General Course Sophomores.

Two exercises per week. F.

24. Elementary Machine Drawing.

For Chemical Sophomores.

Two exercises per week. F.

25. Elementary Machine Drawing.

Mechanism drawing; detail and assembly drawing of simple machines.

For Engineering Sophomores.

Two exercises per week. W.

26. Machine Drawing.

Continuation of 25.

For Engineering Sophomores.

Five exercises per week. S.

27. Machine Drawing.

Working drawings of various machines and machine tools. For Engineering Juniors.

Two exercises per week. F.

28. Elementary Machine Design.

For Engineering Juniors.

Two exercises per week. W.

29. Steam Engine Design.

Engine details and valve-gear problems. For Engineering Juniors.

Two exercises per week. S.

30. Machine Design Drawing.

Completion of 29; the Stephenson link-motion as applied to the locomotive. 30:—The designing of boilers, shaft-couplings, pulleys, etc., having regard to the principles of Applied Mechanics and strength of materials, with complete working drawings in each case. For Mechanical Engineering Seniors who have taken Drawing 29 and Mechanical Engineering 4–6 and 8–11.

Five exercises per week. F.

31. Mill Engineering Drawing.

Figuring for strength of flooring, beams, brick and stonework in a mill storehouse, with drawing of same. For Mechanical Engineering Seniors.

Four exercises per week. W.

32. Mill Design.

Principles and practice of cotton mill construction. Details and processes of cotton spinning and cotton machinery. The planning and laying out of a complete mill of given spindle capacity, with regard to location and number of machines, transmission and distribution of power, light, fire protection, etc.

Three exercises per week. S.

33. Free-hand Drawing.

Light and shade drawing from casts and still life; charcoal work. Elective for General Course Sophomores.

Two exercises per week. W.

34. Free-hand Drawing.

Pencil sketching from nature and exercises in perspective. Elective for General Course Sophomores.

Two exercises per week. S.

35. Architectural Drawing.

Studies of architectural detail and historic ornament.
Elective for General Course Juniors.

Three exercises per week. F.

36. Architectural Drawing.

Continuation of 35.
Elective for General Course Juniors.

Two exercises per week. W.

37. Architectural Drawing.

The design of a building, with details of ornament.
Elective for General Course Juniors.

Two exercises per week. S.

38. Architectural Drawing.

Elective for General Course Seniors.

Two exercises per week. F.

39. Architectural Drawing.

Elective for General Course Seniors.

Two exercises per week. W.

40. Architectural Drawing.

Elective for General Course Seniors.

Two exercises per week. S.

NOTE.—Courses 38–40 will be given first in 1906–1907, and will correspond to the third year's work in a course of Architecture.

ELECTRICAL ENGINEERING.

1. Direct Currents and Direct Current Dynamos.

Engineering Juniors, *three exercises per week. F.*

This course is taken up upon completion of physics 5 and begins with the study of the magnetic field produced by permanent and electro magnets, the different forms of field magnets, the physical theory of the dynamo and the calculations of the magnetic circuit. The next items are the choice of insulating materials and the copper for the coils, the consideration of armature reactions and the theory of commutation. Upon completion of the text on characteristic curves, a very thorough test is made of an Edison 3 K-W compound dynamo to determine its series—shunt and compound characteristics.

The text-book used in Courses 1 to 3 is S. P. Thompson's Dynamo Electric Machinery, Vol. 1, Direct Currents.

2. Direct Current Dynamos and Motors.

Engineering Juniors, second term, *three exercises per week. W.*

The following subjects are taken up this term: The theory of armature winding and construction; mechanical points of design and construction; the various losses; and the design of closed coil types of dynamos.

3. Direct Current Dynamos and Motors.—A continuation of Course 2.

Electrical Engineering Juniors, first term, *three exercises per week. S.*

Upon completion of Course 2, a study is made of arc lighting dynamos, machines for special purposes, direct current motors and their design, regulators, controllers and the management of dynamos and motors.

4. Theoretical Electricity.

Electrical Engineering Juniors, first term, *three exercises per week. F.*

This course begins with the study of the fundamental and derived units, the latter of which include the electrostatic, the electromagnetic and practical systems, and their conversion factors. The general theorems of the electrostatic field are developed mathematically, the laws are stated and practical application is made of them in the design of commercial apparatus.

Following this part of the subject, a study is made of magnetism and the magnetic field due to magnets, magnetic shells and circuits traversed by electric currents.

The equivalence of magnetic shells and voltaic circuits is considered with regard to its important application in galvanometers, voltmeters, etc. The theory of measuring instruments of different types is studied in detail.

5. Theoretical Electricity.

Electrical Engineering Juniors, *three exercises per week. W.*

This is a continuation of Course 4. The laws of series and parallel circuits, the laboratory methods of measuring the various electrical quantities, such as electromotive forces, resistances, capacities, permeability of iron, etc., the methods of standardizing instruments, the laws of electrolysis, etc., constitute the subjects taken up in Courses 4 and 5.

A large number of examples from Hooper and Wells' "Electrical Problems" are solved as a part of Courses 4 and 5. The text used in these courses is a set of notes based upon the work of Maxwell, Gray, J. J. Thomson, Gerard, Entage, Nipher, Foster, Jackson and others.

6. Theoretical Electricity Alternating Currents.

Electrical Engineering Juniors, *six exercises per week. S.*

This course begins with the study of the properties of periodic curves, the average and virtual values of the ordinates of sine curves, followed by the development of general expressions for

the instantaneous electromotive force impressed upon, and the energy spent in a series circuit, containing resistance R, self-induction L and capacity S, in terms of their components.

The phase relations of these component quantities are studied by plotting curves for a typical circuit of assumed data.

D. C. and J. P. Jackson's "Alternating Currents and Alternating Current Machinery" is the text upon which Courses 6, 7, 8 and 9 are based. Reference is also made to other standard works.

7. Theoretical Electricity.—"Alternating Currents and Alternating Current Machinery."

Electrical Engineering Seniors, first term, *five exercises per week. F.*

Considerable time is spent in getting a correct knowledge of typical series and parallel circuits containing inductive and condenser reactances.

The solution of problems by the analytical and graphical methods, the methods of measuring inductances, power, etc., the magnetic circuit of alternators, the regulation efficiencies and losses of machines of different types receive due attention.

8. Theoretical Electricity.—"Alternating Currents and Alternating Current Machinery."

Electrical Engineering Seniors, *five exercises per week. W.*

A detailed study of the transformer is made and formulæ of design are developed, which enable its operation to be predicted under various conditions. Jackson's text is used, in addition to notes from Bedell's and Fleming's works on the transformer.

This is followed by the study of Polyphase Electric Currents and Machinery, in which S. P. Thompson's book is used in class, along with that portion of Jackson's work on the same subject.

9. Alternating Current Phenomena.

Electrical Engineering Seniors, *three exercises per week. S.*

Steinmetz's text is used in class.

Electrical Engineering 10 to 18 are taken by Seniors of the Electrical Engineering Course.

10. The Telephone.

First term, *three exercises per week for six weeks. F.*

A course of lectures and recitations on the acoustic and electrical principles of telephony, the different forms of calling and receiving apparatus and accessories, and simple circuits constitute the introduction to the course. This is followed by a consideration of the more complex forms of circuits, exchange switchboards, transfer systems and the construction of overhead and underground systems.

Kempster B. Miller's "American Telephone Practice" is used as a text.

11. The Telegraph.

Three exercises per week for six weeks. F.

The work of this course consists of a careful study of the elementary electrical principles of telegraphy, the construction and connection of lines, repeaters, high speed telegraphy, simple and multiplex telegraphy, submarine signalling, automatic devices, general electric signalling for purposes of alarms, railroads, etc., and wireless telegraphy.

he text used is Maver's "American Telegraphy.

12. Storage Batteries.

Three exercises per week the last three weeks. F.

This is a course of lectures, discussing the different types of cells, charging, discharging, their care and management, their commercial application for keeping the voltage constant at feeding centers, etc., and as sources of constant potential for laboratories.

Notes and references are used by the class.

13. Electric Lighting.

Three exercises per week. W.

This course covers such subjects as general electrical distributions for series and parallel systems, the development of wiring formulæ, the calculation of size of feeders and mains, the regulation of feeder voltages, two and three wire systems, overhead and underground conductors, a detailed study of the arc and incandescent lamps, alternating current systems of distribution by transformers, etc.

Crocker's "Electric Lighting," Vol. II, is used as a text.

14. Power Distribution for Electric Railroads.

Three exercises per week. W.

The chief items considered are the location of the power station as determined by economical questions, the fluctuations of load and their nature and magnitude, feeding and return systems, boosters, substations, fast and heavy railway service, alternating current motors for railroads, car equipment, controllers, safety devices, line and track construction, operation and maintenance. In connection with this course several exercises are devoted to electricity in mining.

The text used is Bell's "Power Distribution for Electric Railroads."

15. Electrical Laboratory.

Two exercises per week. F.

Courses 15, 16 and 17 are consecutive and consist in the measurement of resistances, inductances, the calibration of a ballistic galvanometer and Ryan electrometer, the permeabilities of samples of iron. Tests are made on a small dynamo, connected to run as a direct current series, a shunt, or a compound motor to determine the speed, torque, current, output and efficiency curves of motors. The determination of the candle power of incandescent and arc lamps, the calibration of resistances, the measurement of power in alternating current circuits, alternator characteristics, the running of synchronous motors, the load curves of a transformer, power measurement by a wattmeter and the study of polyphase machinery constitute the remainder of the course.

The laboratory manuals, upon which Courses 15, 16 and 17 are based, are Parr's "Electrical Testing in Physics and Electrical Engineering," Nichols' "Laboratory Manual in Physics and Applied Electricity," and Swenson and Frankenfield's "Testing of Electro Magnetic Machinery."

16. Electrical Laboratory.

Two exercises per week. W.

17. Electrical Laboratory.

Two exercises per week. S.

18. Thesis.

Three exercises per week. S.

19. Alternating Currents.

Three exercises per week for five weeks. S.

This is a brief course taken by Juniors of the Mechanical

Engineering Course upon completion of Courses 1, 2 and 3. The text-book used is Franklin and Williamson's "Alternating Currents."

20. Alternating Currents.

Three exercises per week for the first eight weeks. F.

This is a continuation of Course 19 and is taken by Seniors of the Mechanical Engineering Course.

21. Applications of Electricity.

Three exercises per week for the last seven weeks. F.

This is a course of lectures on the telephone, telegraph, storage batteries, electric lighting and electric railroads, and is given to Seniors of the Mechanical Engineering Course upon completion of Courses 19 and 20. The subjects taken up in this course are more briefly treated than in Courses 10 to 14, inclusive.

Courses 22 and 23 are taken by Technical Chemistry Seniors.

Course 24 is elective for Agricultural and General Course Seniors.

22. Industrial Electricity.

Three exercises per week. F.

The principles and methods employed in electrical measurements, such as resistance of wires and batteries, e. m. f. of cells, current measurement by ammeters and electrolysis, the use of the voltmeter, etc., will be carefully considered. A brief study will be made of the dynamo, motor, transformer, primary and secondary batteries, arc and incandescent lamps and the general principles of electrical distribution.

23. Industrial Electricity.

Three exercises per week. W.

This is a continuation of Course 22. Slingo and Brooker's "Electrical Engineering" is used as a text-book in Courses 22 and 23.

24. Industrial Electricity.

Three exercises per week. F.

This course is elective for Seniors of the Agricultural and General Courses. In an elementary way, study is made of such

subjects as the dynamo, motor, transformer, power transmission, storage batteries, incandescent and arc lighting, the telephone, telegraph and electric railroads.

ENGLISH.

1. Rhetoric and Composition.

Two exercises per week. F.

2. Rhetoric and Composition.

Two exercises per week. W.

3. Rhetoric and Composition.

One exercise per week. S.

Courses 1, 2 and 3, required of all Freshmen, have been made continuous courses.

Theme writing, book reviews, the theory of composition and an introduction to the principles of literary criticism.

4. English Literature.

Chaucer to Wordsworth. Lectures and readings. Special attention will be given to the theory of the drama. Open to Juniors.

Two exercises per week. W.

5. Wordsworth to Browning.

Text-book, lectures and readings. Special attention will be given to the work of Tennyson and Browning. Open to General and Agricultural Juniors and Chemical Seniors.

Two exercises per week. S.

7. Course in debating.

This is intended to give the student a knowledge of the principles of argumentation and to accustom him to speaking in public.

One exercise per week. W. or S.

8. American Literature.

For Agricultural and General Seniors.

Three exercises per week. W.

9. American Literature.

A continuation of 8.

Three exercises per week. S.

10. Grammar and Elementary Composition.

For First Year Short Course Students.

Three exercises per week. F.

FORESTRY.

1. Arboriculture and Forestry.

This course is intended to give the student a knowledge of the various methods of forestry management in Europe and America. The text and lectures will cover the use of trees for shelter, shade and ornament, and their propagation; value of trees for timber; how to improve existing woodlands; influence of forests upon soils, crops and climate; establishment and management of plantations of forest trees.

For Agricultural Juniors and second year two-year men.

Three exercises per week. W.

2. Forest Technology.

This course aims to give the student advanced theoretical and practical work in establishing, improving and managing woodlands; estimating and measuring standing timber and harvesting forest products. The physical properties of woods and forest botany and entomology are here further considered. Seminary and laboratory work.

Elective for those students showing special ability in Course 1.

Three exercises per week. F.

3. Forest Economics.

This course is special and offered only to students who have shown marked proficiency in Forestry 1 and 2. Climatic influences; soil and crop production; forest administration, forest laws and forest policies; forest distribution; and forest utilization.

Elective for those having had Course 2.

Three exercises per week. S.

FRENCH.

Courses 1, 2 and 3 are taken in Freshman year by students who offer German for admission.

1. Essentials of French Grammar and reading with practice in speaking and writing French. Dictation.

Three exercises per week. F.

2. Grammar continued. Simple stories, committing of poems to memory. Dictation.

Three exercises per week. W.

3. Reading of Modern French Prose, translation from English into French of connected narrative. Dictation.

Three exercises per week. S.

4. Reading and translation of Scientific French, Composition, Poems.

Three exercises per week. F.

5. Reading, Translation and Composition continued.

Three exercises per week. W.

6. French Prose, History and Travel; Composition based on some book read in class.

Three exercises per week. S.

7. French Prose, Sight Reading.

Hugo, Balzac, Sand.

Three exercises per week. F.

8. Classical French.

Corneille, Racine and Molière.

Three exercises per week. W.

9. General Review of French Literature. Outside reading; sight work.

Three exercises per week. S.

GEOLOGY.

1. Mineralogy.

A short course in blowpipe analysis, followed by laboratory practice in the determination and study of minerals, with special reference to their economic value. For Chemical Sophomores and Engineering, General and Agricultural Juniors.

Course 1 is open only to those who have taken Chemistry 1 and 2.

Three exercises per week. S.

2. Elementary Geology.

A brief course in the elements of Geology. Special attention is given to local geology and excursions are made to various points of interest in the vicinity. For Agricultural and General Seniors.

Open to those who have completed Zoology 5 and Geology 1.

Four exercises per week. F.

GERMAN.

Courses 1, 2 and 3 are taken in Freshman year by students who offer French for admission. Courses 4, 5 and 6 are taken by all Sophomores.

1. German Grammar. Declension of articles, nouns, adjectives and pronouns; verbs, weak and strong. Reading of simple stories; conversation. Dictation.

Three exercises per week. F.

2. Verbs, modal auxiliaries, essentials of syntax. Composition, Reading and Translation; Poems. Dictation.

Three exercises per week. W.

3. Reading, Translation and Composition; Sight Translation. Dictation.

Three exercises per week. S.

4. German Prose of the Nineteenth Century. Composition based on some book read in class.

Three exercises per week. F.

5. German Prose of the Nineteenth Century continued. Composition, outside reading.

Three exercises per week. W.

6. Easier works of Lessing and Schiller. Composition.

Three exercises per week. S.

7. Masterpieces of German Literature. Lessing and Schiller.

Three exercises per week. F.

8. Goethe. German Ballads and Lyrics.

Three exercises per week. W.

9. General review of German Literature, outside reading.

Three exercises per week. S.

The aim throughout the courses in French and German is to train the students to make practical use of these languages. Considerable stress is laid, therefore, on reading aloud, dictation and paraphrasing the assigned texts.

HISTORY.

In the courses in History an important place is given to historical reading carried on in the reference room. In some cases a considerable part of the work is written.

Courses 1 to 3 and Courses 4 to 6 are given on alternate years, Courses 4 to 6 offered in 1905–'06.

Courses 1 to 6 are open only to those who have passed in Grecian and Roman History.

Courses 7 to 9 are open only to those who have passed in History and Constitution of the United States.

1. History of Europe from 814 to 1492. Recitations and collateral reading.

For General Course Freshmen and Sophomores.

Three or four exercises per week. F.

2. History of Europe from 1492 to 1598. Recitations and collateral reading.

For General Course Freshmen and Sophomores.

Three exercises per week. W.

3. History of Europe from 1598 to 1715. Recitations and collateral reading.

For General Course Freshmen and Sophomores.

Three or four exercises per week. S.

4. History of Europe from 1715 to 1789. Europe at the beginning of the French Revolution. Recitations and collateral reading.

For General Course Freshmen and Sophomores.

Three or four exercises per week. F.

5. History of Europe from 1789 to 1815. The French Revolution. Recitations and collateral reading.

For General Course Freshmen and Sophomores.

Three exercises per week. W.

6. History of Europe since 1815. Recitations and collateral reading.

For General Course Freshmen and Sophomores.

Three or four exercises per week. S.

7. Political and Constitutional History of the United States from 1783 to 1840.

For General Course Juniors and Agricultural Seniors.

Four exercises per week. F.

8. Political and Constitutional History of the United States from 1840 to 1865.

For General Course Juniors and Agricultural Seniors.

Three exercises per week. W.

9. Political and Constitutional History of the United States since 1865.

For General Course Juniors and Agricultural Seniors.

Two exercises per week. S.

HORTICULTURE.

With the rapid development of agricultural education, the science of horticulture has become more clearly defined. Horticulture is sub-divided into four classes, viz.: (1) Pomology, or fruit growing; (2) Olericulture, or vegetable gardening; (3) Floriculture, or flower growing; and (4) Landscape Gardening.

1. Principles of Horticulture.

This course is elementary, and comprises the fundamentals of horticulture, emphasizing the sciences upon which horticulture rests and the scope and importance of its field.

For Agricultural Freshmen.

Three exercises per week. S.

2. Olericulture.

Lectures and recitations upon the culture, classification and identification of vegetables. The storing and marketing of vegetables is also considered. This course is given as a laboratory course of fifteen exercises in the fall term for the study and identification of varieties and in the spring term twenty exercises are given to complete the course.

For Agricultural Sophomores and second year two-year men.

Open only to those who have completed Botany 3 and are taking Botany 4.

3. Greenhouse Management.

Lectures, recitations and laboratory work. This course aims to familiarize the student with modern methods of greenhouse work and the more important plants grown under glass. Soils, varieties, culture, marketing, enemies, etc., are studied. Each

student is required to do practical work in propagating, potting, watering, ventilating, etc. A study of the history and development of different types of greenhouses, including methods of heating and general management.

For Agricultural Sophomores and first year two-year men.

Three exercises per week. W.

4. Pomology and Viticulture.

The culture, classification and identification of our leading commercial fruits are taken up for study in this course, the object being to familiarize the student with modern fruit growing, both the large or orchard fruits and the small or berry fruits. Lectures, recitations and laboratory work.

For Agricultural Juniors and second year two-year men.

Open only to those having completed Botany 1 and Zoology 3.

Three exercises per week. F.

5. Floriculture and Home Decoration.

Lectures, recitations and laboratory work. The culture and uses of ornamental plants are studied together with their history, classification, characteristics, propagation and uses on private and public grounds.

For Agricultural Juniors and second year two-year men.

Open only to those who have completed Horticulture 3.

Three exercises per week. S.

6. Plant Breeding.

This course takes up the evolutionary study of plant life and points out through examples, largely of economic horticultural plants, their modification and improvement by mutation, crossing, dwarfing, forcing, etc. Recitations and seminary work.

For Agricultural Seniors.

Three exercises per week. W.

7. Landscape Gardening.

Lectures, recitations and laboratory work on the principles of æsthetics as applied to natural scenery; designing, mapping,

staking out and planting private and public grounds, parks, cemeteries, etc., are studied and practised.

Courses Horticulture 3 and 5 must precede this course.

Three exercises per week. S.

8. Horticultural Seminary.

This course consists of the study of current horticultural literature and various advanced horticultural problems.

Preceded by Courses 6 and 7.

Two exercises per week. S.

9. Advanced Horticulture.

This course consists of special advanced work arranged to suit the needs of individual students. Open to those having completed the first five courses in Horticulture.

Three exercises per week. F.

MATHEMATICS.

1. Algebra completed.

For all Freshmen.

Five exercises per week. F.

2. Solid Geometry, with advanced course.

For Freshmen entering without the subject.

Two exercises per week. F.

3. Plane and Spherical Trigonometry.

For all Freshmen.

Four exercises per week. W.

4. Surveying.

Recitations, field-work and plotting, including compass, transit, plane-table and level work. Required of Engineering, Chemical and Agricultural Freshmen. Elective for General Course Freshmen.

Three exercises per week. S.

5. Analytic Geometry.

For Engineering and Chemical Sophomores. Elective for General Course Sophomores.

Five exercises per week. F.

6. Differential Calculus.

For Engineering and Chemical Sophomores. Elective for General Course Sophomores.

Five exercises per week. W.

7. Integral Calculus.

For Engineering and Chemical Sophomores.

Five exercises per week. S.

8. Differential Equations.

For General Juniors.

Two exercises per week. F.

9. Quaternions.

For General Juniors.

Two exercises per week. W.

10. Astronomy.

For General Juniors.

Four exercises per week. W.

11. Roads, Streets and Pavements.

Recitations and lectures on construction and maintenance of paved, macadamized and gravel roads, with discussion of laws relating thereto. For Agricultural Seniors.

Three exercises per week. S.

12.

For first year short course students.

Three exercises per week. F.

13. Continuation of 12.

Three exercises per week. W.

METEOROLOGY.

1. Meteorology.

Recitations and lectures on wind systems, precipitation, humidity, laws of storms and tornadoes and methods of prediction of atmospheric changes. For Agricultural and General Seniors.

Three exercises per week. S.

MECHANICAL ENGINEERING.

1. Mechanism.

Recitations and exercises in drawing outlines of elementary combinations of parts of machines, with special reference to the relative motion of the parts, their forms and modes of connection. For Engineering Freshmen.

Open only to those who have taken Mathematics 1–24, Drawing 19–20.

Three exercises per week. S.

2. Mechanism.

For Engineering Sophomores.
Continuation of 1.

Two exercises per week. F.

3. Mechanism.

Continuation of 1 and 2.

Two exercises per week. W.

4. Mechanics of Engineering.

Courses 4, 5 and 6 are devoted to recitations in statics and dynamics. For Engineering and Chemical Juniors.

Courses 4 to 6 are open only to those who have taken Mathematics 1 to 7, inclusive, and Physics 1.

Two exercises per week. F.

5. Mechanics of Engineering.

Continuation of 4.

Four exercises per week. W.

6. Mechanics of Engineering.

Continuation of 4 and 5.

Four exercises per week. S.

7. Graphic Statics.

For Engineering and Chemical Juniors.

Two exercises per week. F.

8. Steam Engineering.

Recitations and lectures on thermodynamics, boilers and valve gears. For Engineering Juniors.

Four exercises per week. F.

Course 8 is open only to those who have taken Mathematics 1–7, Physics 1 and 2, Drawing 19–21.

9. Steam Engineering.

Continuation of Course 8.

Three exercises per week. W.

10. Steam Engineering.

Continuation of Courses 8 and 9.

Four exercises per week. S.

11. Materials of Construction.

Recitations on the production, properties, uses and preservation of engineering materials. For Engineering Seniors. Continuation of Courses 4–6.

Four exercises per week. F.

Course 11 is open only to those who have taken Courses 4, 5, 6 and 7.

12. Hydraulics.

For Engineering Seniors.

Open only to those who have taken Courses 4 to 6.

Three exercises per week. F.

13. Hydraulic Motors.

For Mechanical Engineering Seniors.

Course 13 is open only to those who have taken Course 12.

Three exercises per week. W.

14. Mechanical Laboratory.

Tests of materials, boilers, engines, pumps, indicators, etc. For Engineering Seniors.

Course 14 is open only to those who have taken Courses 1 to 10 and must have taken or are taking 11 and 12.

Two exercises per week. F.

15. Mechanical Laboratory.

Continuation of Course 14.

Three exercises per week. W.

16. Mechanical Laboratory.

Continuation of Courses 14 and 15.

Two exercises per week. S.

17. Multiple Expansion Engines.

For Engineering Seniors.

Open only to those who have taken 4--6, 8--10 and 14.

Three exercises per week. W.

18. Gas and Hot Air Engines and Refrigerating Machinery.

For Engineering Seniors.

Open only to those who have taken 4--6, 8--10, 14, 15 and 17.

Three exercises per week. S.

19. Machine Design.

For Mechanical Engineering Seniors.

The design of boilers, boiler setting details, shafting, couplings and pulleys, with regard to the principles of Applied Mechanics

and strength of materials. Given as Machine Design Drawing. See Drawing 30.

Course 19 is open only to those who have taken Courses 4–6 and 8–11 and Drawing 29.

20. Specifications and Contracts.

For Mechanical Engineering Seniors.

Three exercises per week. W.

21. Mill Design.

Given as Drawing 32.

Three exercises per week. S.

22. Elementary Steam Engineering.

For Engineering Sophomores.

Two exercises per week. S.

MILITARY SCIENCE AND TACTICS.

Each male student, unless a member of the Senior class, or physically unfit is required to drill and attend recitations in military science.

COURSE OF INSTRUCTION.

1. Military Drill.

Infantry drill regulations through the school of the battalion in close and extended order.
Advance and rear guards.
Outposts.
Marches.
Ceremonies; battalion review, parades and guard mounting.
Calisthenics and gymnastics.
Rifle practice.
First aid to the injured.
Signalling.

Four exercises per week.

2. Military Science.

Infantry Drill Regulations covered by practical instruction; Manual of Guard Duty; Small Arms Firing Regulations; Articles of War; enlistment and discharge papers; morning reports; field returns; muster rolls; rosters; ration returns; requisitions; property returns, etc., with lectures on military subjects, notes upon which are to be taken for subsequent examination.

One exercise per week.

3. Army Organization and Administration.

Lectures and preparation of military papers.
Elective for Seniors only.

One exercise per week.

PHILOSOPHY.

1. The History of Educational Theory.

The greater part of the course is taken up with the study of the modern educational reformers: Comenius, Rousseau, Pestalozzi, Froebel, Spencer and Herbart.

Open to Sophomores.

Two exercises per week. W.

3. Psychology.

An introduction to the study of the mental life. The practical needs of the student are related as closely as possible to the work of the course.

Open to Juniors and Seniors.

Three exercises per week. F.

4. Philosophy of Education.

The meaning of education is defined from the aspect of the biological, the physiological, the social, the psychological and the philosophical. Horne's "Philosophy of Education."

Open to Juniors and Seniors.

Three exercises per week. W.

5. Logic.

A study of the methods, fallacies and aims of human thinking. A preparation for work in science and in philosophy.

Open to Sophomores.

Two exercises per week. S.

7, 8 and 9. Advanced Pedagogy.

A one-hour course throughout the year. Some important work on the practice of education is made the basis for study. Free discussion of the teacher's problems is made a part of the class exercises. Practice work for the students who wish it is found in the public schools at and near Durham. Extra credit is given for the practice teaching. The permission of the instructor is required before electing this course.

10. Herbartian Psychology.

This course attempts to make a thorough study of the system of Herbart and to relate his contributions to the problems of present-day teaching.

Open to Juniors and Seniors who have passed Course 3.

Three exercises per week. S.

11. Advanced Psychology.

This course is a natural continuation of Course 3. The emotional and volutional aspects of the mind are studied more carefully than is possible in the elementary course.

Open to all students who have passed Course 3.

Three exercises per week. F.

PHYSICS.

Courses 1 to 8 are taken consecutively by students of the Engineering Courses. Students in the Chemical Engineering Course take Courses 1 to 5, 7 and 8. Students in the course in Agriculture take Courses 1 to 4, and such part of Course 5 as may be given in the Winter term. They may also elect in the Senior year, Electrical Engineering 24, as

a continuation of Physics 5. Students in the General Course are required to take either Course 1 or 9, and they may elect Courses 10 to 13.

1. Mechanics.

Freshmen, three exercises per week. S.

The principles and laws of general physics are illustrated by a number of experiments, and the student is taught to make ready application of his mathematics in the solution of problems.

It is intended to provide a foundation in the dynamics of solids, liquids and gases, and also in the subjects of statics and hydrostatics.

Instruction is given by lectures, recitations and problem work. The text used is Ganot's Physics. Reference is made to Ames' Theory of Physics, Watson's Physics and other standard treatises.

2. Heat.

Sophomores, three exercises a week for first eight weeks. F.

The theories of heat are briefly discussed. The subdivisions of the subject, such as the nature of heat, its effects, thermometry, sources of heat, the transference and transformations of heat are considered in detail. Constant attention is given to the relation of these topics to the subject of thermo-dynamics. Ganot's Physics is used as the text.

3. Light.

Sophomores, three exercises a week for the last seven weeks. F.

The subject is approached from the geometrical and physical standpoint. A number of experiments are performed, illustrative of wave motion in general, followed by a study of that form of wave motion upon which the modern theory is based.

The subject is developed progressively and due attention is given to such subjects as reflection, refraction, color, the spectrum, and interference and polarization phenomena.

The student makes a careful study of optical instruments of all classes. Ganot's Physics is used as the text.

4. Sound.

Sophomores, three exercises per week for the first five weeks. W.

The course consists of lectures and recitations, considerable

emphasis being laid upon the relation of the subject to the transmission of speech.

The text used is Stone's Elementary Lessons in Sound.

5. Electricity and Magnetism.

Sophomores, three exercises per week for the last five weeks of the second term and all of the third term. W. and S.

Numerous experiments are performed to illustrate the various phenomena of electrostatics, magnetism, current electricity and electric waves. As the course advances, the attention of the student is constantly called to the applications of electricity to the arts and sciences. S. P. Thompson's "Elementary Lessons in Electricity and Magnetism" is used as a text. This course is required as a preparation for Electrical Engineering 1 to 4 and 22 and 23.

6. Elements of Least Squares and the Precision of Measurements.

Juniors, three exercises per week. F.

This course is intended to serve as an introduction to the subject of Physical Measurements. It familiarizes the student with the precautions necessary in taking experimental data and of properly using his data in order to secure the most reliable results.

A large number of problems are solved, illustrating the determination of physical constants and in deducing the constants of empirical equations.

7. Physical Laboratory.

Juniors, three exercises per week. W.

The apparatus employed in the experimental part of Courses 7 and 8 is adapted to no special laboratory manual, and either notes are prepared for students' use or reference is made to the works of Ames and Bliss, E. L. Nichols, H. M. Godwin and others.

The laws of general physics are investigated experimentally. The student is encouraged to acquire skill in the manipulation of apparatus, habits of clearness and neatness in keeping records, as well as enthusiasm for independent and original investigation.

A careful study is made of the Analytical Balance, time measuring devices, heat measurements, the microscope, spectroscope, lens combinations, photometry, the laws of vibrating strings and the simple electrical measurements.

8. Physical Laboratory.

Juniors, three exercises per week. S.

This is a continuation of Course 7 and is largely devoted to the calibration of galvanometers, ammeters, the determination of the constants of instruments, the measurement of voltages, resistances, etc.

On the completion of Courses 7 and 8, an examination is given to test the student's knowledge of physical research, both in attacking a given problem and in thinking and acting for himself.

Physics 9 to 13 are given to students who do not intend to pursue mathematics beyond the subject of Trigonometry. These courses are accepted as the work required in the course in agriculture. Their completion does not prepare the student to enter Courses 7 and 8.

9. Mechanics.

General Course Freshmen, three exercises per week. S.

This is a briefer course than Physics 1 and aims to meet the needs of the student wishing to obtain some knowledge of physical phenomena and its laws.

10. Heat.

Elective for General Course Sophomores, three exercises per week for six weeks. F.

11. Light.

Elective for General Course Sophomores, three exercises per week for five weeks. F.

12. Sound.

Elective for General Course Sophomores, three exercises per week for the last four weeks. F.

13. Electricity and Magnetism.

Elective for General Course Sophomores, three exercises per week throughout the term. W.

Physics 14 and 15 are intended to acquaint the student with the fundamental principles and facts of physics.

14. Elementary Physics.

First year of the short course in Agriculture, *three exercises per week. S.*

15. Elementary Physics.

Second year of the short course in Agriculture, *three exercises per week. F.*

This is the completion of the work begun under Course 14.

POLITICAL SCIENCE.

1. Political Economy.

An elementary course, with lectures upon some of the practical questions of the day.

For Agricultural and General Sophomores and Engineering and Chemical Seniors.

Five exercises per week. S

2. Laws of Business.

Recitations supplemented by lectures and the discussion of cases.

Two credit hours.

Courses 2 and 3 are given consecutively in the Fall term.

Five exercises per week.

For Agricultural and General Seniors.

3. American Constitutional Law.

Use is made of Pomeroy's Constitutional Law, which is supplemented by the decisions of the United States Supreme Court. Special attention is given to the connections between American constitutions and American political history.

Three credit hours.

4. Money and Banking.

Recitations, readings and lectures.

For Agricultural Seniors and General Juniors and Seniors.

Courses 4 and 6 are given in alternate years. Course 4 will be offered in the year 1906–'07.

Open only to those who have taken Course 1.

Three exercises per week. W.

5. Socialism and Social Reform.

Readings, recitations and lectures.

For Agricultural Seniors and General Juniors and Seniors.

Courses 5 and 7 are given in alternate years. Course 5 will be offered in 1906–'07.

Open only to those who have taken Course 1.

Three exercises per week. S.

6. International Law.

For Agricultural Seniors and General Juniors and Seniors.

Courses 4 and 6 are given in alternate years.

Three exercises per week. S.

7. Public Finance.

For Agricultural Seniors and General Juniors and Seniors.

Courses 5 and 7 are given in alternate years.

Open only to those who have taken Course 1.

Three exercises per week. W.

SHOP WORK.

Three hours' work in the shop is reckoned as one exercise.

1. Wood Work.

Exercises in carpentry work, joinery and pattern making. For all male Freshmen.

Two exercises per week. F.

2. Pattern Making and Foundry.

A continuation of 1.

For Chemical and Engineering Freshmen.

Two and one-half exercises per week. W.

NOTE.—Alternate with Drawing on Wednesdays.

3. Pattern Making and Foundry.

For Chemical and Engineering Freshmen.

Two exercises per week. S.

4. Forging.

For Chemical Seniors and Engineering Sophomores.

Two exercises per week. F.

5. Iron Work.

For Chemical and Engineering Sophomores.

Two exercises per week. W.

6. Iron Work.

For Engineering Juniors.

Two exercises per week. F.

7. Iron Work.

For Engineering Juniors.

Two exercises per week. W.

8. Iron Work.

For Engineering Juniors.

Two exercises per week. S.

9. Iron Work.

For Mechanical Engineering Seniors.

Two exercises per week. F.

10. Iron Work.

For Mechanical Engineering Seniors.

Two exercises per week. W.

11. Iron Work.

For Mechanical Engineering Seniors.

Two exercises per week. S.

12. Wood Work.

For first year two-year students.

Three exercises per week. *W.*

13. Iron Work.

For first year two-year students.

Three exercises per week. *S.*

14. Special Shop Work.

Work arranged to suit the needs of particular students.

From one to four exercises per week. *F.*

15. Special Shop Work.

From one to four exercises per week. *W.*

16. Special Shop Work.

From one to four exercises per week. *S.*

17. Forging.

For Agricultural and General Course Freshmen.

Two and one-half exercises per week. *W.*

SPANISH.

Spanish 1, 2 and 3.

Essentials of Spanish Grammar. Translation of modern Spanish prose. Stories and plays by modern authors will be read.

Three exercises per week. *F., W., S.*

Elective for General Course Students in Sophomore, Junior or Senior year.

ZOOLOGY.

The courses in Zoölogy are arranged in sequence for those studying Agriculture or Economic Entomology, and for those desiring a more general course fitting them for teach-

ing or for medical studies, though any courses offered may be taken by those who have completed previous courses necessary. See Biological Division, Agricultural Course, page 37.

1. Invertebrate Zoölogy.

The structure and life of the invertebrate animals, except insects. Lectures and laboratory dissections of typical forms. For Agricultural and General Sophomores.

Three exercises per week. F.

3. Economic Entomology.

Insects affecting crops, domestic animals, etc., their life, histories, habits and methods of combating them. Special consideration of general farm methods for control of insects affecting staple crops and of spraying, machinery and insecticides for combating truck and fruit insects. For Agricultural and General Sophomores completing Course 2.

Four exercises per week. S.

4. General Entomology.

A general survey of the structure, habits and classification of the different orders of insects. Lectures, laboratory dissections and classification. For Agricultural and General Sophomores completing Course 1.

Three exercises per week. W.

5. Vertebrate Anatomy and Physiology.

The comparison of anatomy and physiology of vertebrate animals, general physiology of higher animals, and laboratory dissections of a few typical forms. For Agricultural and General Juniors completing Courses 1 and 2.

Four exercises per week. F.

One hour per week through the year.

6. Principles of Zoölogy.

The history, fundamental principles, problems and philosophy of Zoölogy. Lectures. For Agricultural and General Juniors or

Seniors having completed previous courses. Given in alternate year with Course 17.

Three exercises per week. W.

17. Comparative Zoölogy.

Lectures and reading upon the comparative anatomy and physiology of animals. For Agricultural and General Juniors and Seniors having completed previous courses. Alternates with Course 6.

Three exercises per week. W.

8. Economic Ornithology.

A study of the relation of birds to Agriculture, to each other and other organisms. For Agricultural and General Juniors or Seniors. Alternate with Course 9.

Three exercises per week. S.

9. Advanced Economic Entomology.

The methods of study and general principles of combating insect pests; the literature and history of economic entomology; practice in determining and rearing and combating insect pests. For Agricultural Juniors or Seniors having completed Course 3. Alternate with Course 7.

Three exercises per week. S.

10. Advanced Entomology.

Advanced work in General Entomology; collecting, classification and anatomical studies. For General or Agricultural Juniors having completed Course 2.

Three exercises per week. S.

11, 12 and 13. Advanced Zoölogy.

Averaging four exercises per week for the year. For students who elect Zoölogy for Senior year to be arranged to suit individual needs. Open to those who have completed five previous courses and have shown proficiency in Zoölogy.

14. Elementary Zoölogy.

The structure and habits of the invertebrate and lower vertebrate animals, with special study of insects. Recitations and

laboratory dissections of typical forms. For first year men of two-year Agricultural Course.

Three exercises per week. F.

15. Vertebrate Anatomy and Physiology.

The anatomy and physiology of the higher vertebrates based upon that of man and with special reference to domestic animals. Recitations and laboratory dissections and experiments. For first year men of two-year Agricultural Course. Completing Course 1.

Five exercises per week. W.

16. Biological Seminar.

Reports and discussions upon current literature of Zoölogy and Botany, special topics and observations. For Agricultural and General Juniors and Seniors.

COURSES OF STUDY AND SCHEDULE OF HOURS.

For details see Description of Studies.

Chapel exercises: 11.50 daily. Attendance is required of all students.

Military drill: Fall term M., T., Th., F., 7 to 7.50 a. m. Winter and Spring terms, M., T., Th., F., 12 to 12.30. Attendance is required of all male students.

FRESHMAN YEAR.

For all Four-Year Courses.

FALL TERM.

	Exercises.
Rhetoric—English 1	2
Algebra—Mathematics 1	5
Wood Work—Shop Work 1	2
Drawing—Drawing 19	2
†History—History 1 or 4	3
French—French 1 or German—German 1	3
Inorganic Chemistry—Chemistry 1	3
*Solid Geometry—Mathematics 2	3
Military Science	1

WINTER TERM.

Rhetoric—English 2	2
Trigonometry—Mathematics 3	4
§Pattern Making and Foundry—Shop Work 2	2½
‡Drawing—Drawing 20	2½
†History—History 2 or 5	3
French—French 2 or German—German 2	3

† History is taken by women in place of Shop Work. It is also open to students who are prepared for advance work.

* Optional. Attention is called to preparation required for Drawing 5, 6 and 7. (See page 61)

§ Engineering and Chemical courses take Shop Work 2; others Shop Work 17.

‡ For students taking History, two exercises per week in Drawing.

	Exercises.
Inorganic Chemistry—Chemistry 2	3
Military Science	1
Forging—Shop Work 17	2½

SPRING TERM.

Rhetoric—English 3	1
†Surveying—Mathematics 4	3
Mechanics—Physics 1	3
‡Mechanics—Physics 9	3
†Botany—Botany 8	3
†Wood Work—Shop Work 3	2
†Horticulture—Horticulture 1	2
†Drawing—Drawing 21 or 22	3
†History—History 3 or 6	3 or 4
French—French 3 or German—German 3	3
†Organic Chemistry—Chemistry 3	3
Military Science	1
Mechanism—Mechanical Engineering 1	3

COURSES IN AGRICULTURE.

Sophomore Year.

FALL TERM.

	Exercises.
German 4	3
Chemistry 4	3
Zoölogy 1	3
Heat—Physics 2, eight weeks Light—Physics 3, seven weeks	3
Horticulture 2	1
Botany 9	3
Agriculture 19	3
Military Science	1

WINTER TERM.

German 5	3
Chemistry 4	3
Zoölogy 4	3
Sound—Physics 4, five weeks Electricity and Magnetism—Physics 5, five weeks	3

†Students in the Engineering Course take Drawing and Shop Work. Students in Chemical Engineering also take Organic Chemistry. Students in the Agricultural Course take Botany, Surveying, Horticulture, and Organic Chemistry. Students in the General Course take Botany and History, and elect between Surveying and Organic Chemistry.

‡General Course students elect either Physics 1 or 9.

	Exercises.
Horticulture 3	3
Botany 10	3
Military Science	1

SPRING TERM.

German 6	3
Zoölogy 3	4
Horticulture 2	2
Political Science 1	5
Agriculture 20	3
Botany 11	2
Military Science	1

JUNIOR YEAR.

FALL TERM.

Chemistry 6	3
Dairying 1 and 3	6
Zoölogy 5	4
Horticulture 4	3
Agriculture 2	3
Military Science	1

WINTER TERM.

Chemistry 7	2
English 4	2
*Zoölogy 6 or 17	3
Forestry 1	3
Agriculture 3	3
Agriculture 10	3
*Agriculture 11	4
Military Science	1

SPRING TERM.

English 5	2
Geology 1	3
Horticulture 5	3
Agriculture 4	3
*Agriculture 12	3
Agriculture 13	4
*Zoölogy 7, 9 or 10	3
Military Science	1

NOTE.—English 7. A course in debating, one hour per week, is required in the Junior year, either in the winter or spring term.

*Elective.

During the Junior year students who desire and are qualified to take up work in the Biological or Chemical Division of the Agricultural Course may substitute work in those divisions for Dairying, Agriculture 11 and Agriculture 12.

Senior Year.

FALL TERM.

(Required.)

	Exercises per week.
Geology 2	4
History 7	4
Agriculture 15	2
Thesis	1

(Six hours elective from any courses offered.)

WINTER TERM.

(Required.)

Political Science 6	3
History 8	3
Horticulture 6	3
Thesis	2

(Six hours elective from any courses offered.)

SPRING TERM.

(Required.)

Meteorology 1	3
Agriculture 16	3
Agriculture 17	3
Thesis	2

(Six hours elective from any courses offered.)

COURSES IN ENGINEERING.

Sophomore Year.

FALL TERM.

	Exercises per week.
Analytic Geometry—Mathematics 5	5
Descriptive Geometry—Drawing 23	2
Heat—Physics 2, eight weeks Light—Physics 3, seven weeks	3

	Exercises per week.
German—German 4	3
Forge Shop—Shop Work 4	2
Mechanism—Mechanical Engineering 2	2
Chemical Laboratory—Chemistry 5	2
Military Science	1

WINTER TERM.

Differential Calculus—Mathematics 6	5
Machine Drawing—Drawing 25	2
Sound—Physics 4, five weeks Electricity and Magnetism—Physics 5, five weeks	3
German—German 5	3
Machine Shop—Shop Work 5	2
Mechanism—Mechanical Engineering 3	2
Chemical Laboratory—Chemistry 5	2
Military Science	1

SPRING TERM.

Integral Calculus—Mathematics 7	5
Electricity and Magnetism—Physics 5	3
German—German 6	3
Machine Drawing—Drawing 26	5
Elementary Steam Engineering—Mechanical Engineering 22	2
Military Science	1

COURSE IN ELECTRICAL ENGINEERING.

Junior Year.

FALL TERM.

	Exercises per week.
Mechanics of Engineering—Mechanical Engineering 4	2
Theoretical Electricity—Electrical Engineering 4	3
Least Squares and Precision of Measurements—Physics 6	3
Steam Engineering—Mechanical Engineering 8	4
Direct Currents and Direct Current Dynamos, Electrical Engineering 1	3
Machine Drawing—Drawing 27	2
Graphic Statics—Mechanical Engineering 7	2
Military Science	1

WINTER TERM.

Mechanics of Engineering—Mechanical Engineering 5	4
Physical Laboratory—Physics 7	3

	Exercises per week.
Steam Engineering—Mechanical Engineering 9	3
Direct Current Dynamos and Motors—Electrical Engineering 2	3
Theoretical Electricity—Electrical Engineering 5	3
Elementary Machine Design—Drawing 28	2
Debating—English 7	1
Military Science	1

SPRING TERM.

Mechanics of Engineering—Mechanical Engineering 6	4
Physical Laboratory—Physics 8	3
Steam Engineering—Mechanical Engineering 10	4
Direct Current Dynamos and Motors—Electrical Engineering 3 Theoretical Electricity—Electrical Engineering 6	
Engine Drawing—Drawing 29	2
Military Science	1

Senior Year.

FALL TERM.

Materials of Construction—Mechanical Engineering 11	4
Theoretical Electricity—Electrical Engineering 7	5
Mechanical Laboratory—Mechanical Engineering 14	2
The Telephone, Electrical Engineering 10, six weeks The Telegraph, Electrical Engineering 11, six weeks Storage Batteries, Electrical Engineering 12, three weeks	3
Hydraulics—Mechanical Engineering 12	3
Electrical Laboratory—Electrical Engineering 15	2

WINTER TERM.

Electrical Laboratory—Electrical Engineering 16	2
Electric Lighting—Electrical Engineering 13	3
Power Distribution for Electric Railroads—Electrical Engineering 14	2
Mechanical Laboratory—Mechanical Engineering 15	3
Theoretical Electricity—Electrical Engineering 8	6
Multiple Expansion Engines—Mechanical Engineering 17	3

SPRING TERM.

Mechanical Laboratory—Mechanical Engineering 16	2
Gas and Hot Air Engines—Mechanical Engineering 18	3
Alternating Current Phenomena—Electrical Engineering 9	3
Electrical Laboratory—Electrical Engineering 17	2
Political Economy—Political Science 1	5
Thesis—Electrical Engineering 18	3

COURSE IN MECHANICAL ENGINEERING.

Junior Year.

FALL TERM.

	Exercises per week.
Mechanics of Engineering—Mechanical Engineering 4	2
Least Squares and Precision of Measurements—Physics 6	3
Steam Engineering—Mechanical Engineering 8	4
Direct Currents and Direct Current Dynamos—Electrical Engineering 1	3
Iron Work—Shop Work 6	2
Machine Drawing—Drawing 27	2
Graphic Statics—Mechanical Engineering 7	2
Military Science	1

WINTER TERM.

Mechanics of Engineering—Mechanical Engineering 5	4
Physical Laboratory—Physics 7	3
Steam Engineering—Mechanical Engineering 9	3
Direct Current Dynamos and Motors—Electrical Engineering 2	3
Iron Work—Shop Work 7	2
Elementary Machine Design—Drawing 28	2
Debating—English 7	1
Military Science	1

SPRING TERM.

Mechanics of Engineering—Mechanical Engineering 6	4
Physical Laboratory—Physics 8	3
Steam Engineering—Mechanical Engineering 10	4
Direct Current Dynamos and Motors—Electrical Engineering 3, five weeks Alternating Currents—Electrical Engineering 19, five weeks	3
Iron Work—Shop Work 8	2
Engine Drawing—Drawing 29	2
Military Science	1

Senior Year.

FALL TERM.

Materials of Construction—Mechanical Engineering 11	4
Hydraulics—Mechanical Engineering 12	3
Machine Design—Drawing 30	5
Mechanical Laboratory—Mechanical Engineering 14	2

	Exercises per week.
Iron Work—Shop Work 9	2
Alternating Currents, Electrical Engineering 20, eight weeks Applications of Electricity, Electrical Engineering 21, seven weeks	3

WINTER TERM.

Mill Design—Drawing 31	4
Mechanical Laboratory—Mechanical Engineering 15	3
Multiple Expansion Engines—Mechanical Engineering 17	3
Iron Work—Shop Work 10	1
Hydraulic Motors—Mechanical Engineering 13	3
Specifications and Contracts—Mechanical Engineering 20	3
Thesis	2

SPRING TERM.

Gas and Hot Air Engines—Mechanical Engineering 18	3
Mechanical Laboratory—Mechanical Engineering 16	2
Political Economy—Political Science 1	5
Iron Work—Shop Work 11	2
Thesis	3
Mill Design—Drawing 32	3

COURSE IN CHEMICAL ENGINEERING.

Sophomore Year.

FALL TERM.

	Exercises per week.
Analytic Geometry—Mathematics 5	5
Elementary Machine Drawing—Drawing 24	2
German—German 4	3
Chemical Laboratory—Chemistry 4	5
Heat—Physics 2, eight weeks Light—Physics 3, seven weeks	3
Military Science	1

WINTER TERM.

Differential Calculus—Mathematics 6	5
German—German 5	3
Chemical Laboratory—Chemistry 10	7
Sound—Physics 4, five weeks Electricity and Magnetism—Physics 5, five weeks	3
Military Science	1

SPRING TERM.

	Exercises per week.
Integral Calculus—Mathematics 7	5
Mineralogy—Geology 1	3
German—German 6	3
Organic Chemistry—Chemistry 8	2
Chemical Laboratory—Chemistry 11	3
Electricity and Magnetism—Physics 5	3
Military Science	1

Junior Year.

FALL TERM.

Chemistry of Plant Growth—Chemistry 6	3
Organic Chemistry—Chemistry 9	3
French—French 4	3
Mechanics of Engineering—Mechanical Engineering 4	2
Graphic Statics—Mechanical Engineering 7	2
Chemical Laboratory—Chemistry 11	4
Military Science	1

WINTER TERM.

Chemical Laboratory—Chemistry 11	4
Industrial Chemistry—Chemistry 13	2
Mechanics of Engineering—Mechanical Engineering 5	4
French—French 5	3
Physical Laboratory—Physics 7	3
Debating—English 7	1
Military Science	1

SPRING TERM.

Chemical Laboratory—Chemistry 11	4
Metallurgy—Chemistry 14	2
Mechanics of Engineering—Mechanical Engineering 6	5
French—French 6	3
Physical Laboratory—Physics 8	3
Military Science	1

Senior Year.

FALL TERM.

Chemical Laboratory—Chemistry 11 or Chemistry 21	8
Iron Work—Shop Work 4	2
Chemical Journals—Chemistry 12	1
Steam Engineering—Mechanical Engineering 8	4
Industrial Electricity—Electrical Engineering 22	3

WINTER TERM.

	Exercises per week.
Chemical Laboratory and Thesis—Chemistry 20 or 21	8
Chemical Journals—Chemistry 12	1
Physical Chemistry—Chemistry 15	3
Industrial Electricity—Electrical Engineering 23	3
Chaucer to Wordsworth—English 4	2

SPRING TERM.

Chemical Laboratory and Thesis—Chemistry 20 or 21	6
Chemical Journals—Chemistry 12	1
Assaying—Chemistry 19	1
Physical Chemistry—Chemistry 16	2
Political Economy—Political Science 1	5
Wordsworth to Browning—English 5	2

GENERAL COURSE.

Sophomore Year.

FALL TERM.

	Exercises per week.
Invertebrate Zoölogy—Zoölogy 1	3
German—German 4	3
*Botany—Botany 9	3
*Chemical Laboratory—Chemistry 4	3
*Heat and Light—Physics 2 and 3, or Physics 10, 11 and 12	3
*History—History 1 or 4	4
*Analytic Geometry—Mathematics 5	5
*Spanish—Spanish 1	3
Military Science	1

*Elect 10 exercises.

WINTER TERM.

German—German 5	3
*Chemical Laboratory—Chemistry 4	3
*Sound and Electricity—Physics 4 and 5 or Physics 13	3
*History—History 2 or 5	3
*General Entomology—Zoölogy 4	3
*Botany—Botany 10	3
*Differential Calculus—Mathematics 6	5
*Free-hand Drawing—Drawing 33	2
*Spanish—Spanish 2	3
*Philosophy 1	2
Military Science	1

*Elect 13 exercises.

SPRING TERM.

	Exercises per week.
Political Economy—Political Science 1	5
German—German 6	3
*Electricity and Magnetism—Physics 5	3
*History—History 3 or 6	3
*Economic Entomology—Zoölogy 3	4
*Botany—Botany 11	3
*Chemical Laboratory—Chemistry 10	3
*Free-hand Drawing—Drawing 34	3
*Integral Calculus—Mathematics 7	5
*Philosophy 2	2
*Spanish—Spanish 3	3
Military Science	1

*Elect 8 exercises.

JUNIOR YEAR.

Sixteen exercises required; all elective, with the exception of Military Science and English 7.

FALL TERM.

Psychology—Philosophy 3	3
French—French 4	3
American Political History—History 7	4
Chemistry of Plant Growth—Chemistry 6	3
Chemical Laboratory—Chemistry 4 or Chemistry 10	3
Least Squares and Precision of Measurements—Physics 6	3
Architectural Drawing—Drawing 35	3
Differential Equations—Mathematics 8	2
Spanish—Spanish 1	3
Vertebrate Anatomy and Physiology—Zoölogy 5	4
Military Science	1

WINTER TERM.

French—French 5	3
American Political History—History 8	3
English Literature—English 4	2
Philosophy of Education—Philosophy 4	3
Money and Banking, or International Law—Political Science 4 or 6	3
Chemistry of Food and Nutrition—Chemistry 7	2
Chemical Laboratory—Chemistry 4 or Chemistry 10	3
Physical Laboratory—Physics 7	3
Architectural Drawing—Drawing 36	2

	Exercises per week.
Quaternions—Mathematics 9	2
Principles of Zoölogy or Comparative Anatomy—Zoölogy 6 or 17	3
Spanish—Spanish 2	3
Debating—English 7	1
Military Science	1

SPRING TERM.

French—French 6	3
Mineralogy—Geology 1	3
Logic, or Science of Thought—Philosophy 5 or 6	3
American Political History—History 9	2
Socialism or Finance—Political Science 5 or 7	3
English—English 5	2
Architectural Drawing—Drawing 37	3
Chemical Laboratory—Chemistry 10 or 11	3
Physical Laboratory—Physics 8	3
Spanish—Spanish 3	3
Debating—English 7	1
Economic Ornithology or Advanced Entomology—Zoölogy 7 or 9	3
Military Science	1

Senior Year.

Sixteen exercises required; all elective.

FALL TERM.

Laws of Business—Political Science 2 Constitutional Law—Political Science 3	5
Psychology—Philosophy 3	3
French—French 7	3
Literary Criticism—English 6	2
German—German 7	3
Chemical Laboratory—Chemistry 10 or 11	3
Advanced Zoölogy—Zoölogy 11	4
Advanced Botany—Botany 5 or 12	3
Elementary Geology—Geology 2	4
Architectural Drawing—Drawing 38	3
Spanish—Spanish 1	3
Industrial Electricity—Electrical Engineering 24	3
Thesis Work	2

WINTER TERM.

	Exercises per week.
Money and Banking, or International Law—Political Science 4 or 6	3
Philosophy 4	3
French—French 8	3
German—German 8	3
American Literature—English 8	3
Astronomy—Mathematics 10	4
Chemical Laboratory—Chemistry 11	3
Advanced Zoölogy—Zoölogy 12	3
Principles of Zoölogy or Comparative Anatomy—Zoölogy 6 or 17	3
Advanced Botany—Botany 6 or 13	3
Architectural Drawing—Drawing 39	3
Spanish—Spanish 2	3
Thesis Work	1 or 2

SPRING TERM.

American Literature—English 9	3
French—French 9	3
German—German 9	3
Meteorology—Meteorology 1	3
Roads—Mathematics 11	3
Socialism or Finance—Political Science 5 or 7	3
Logic or Science of Thought—Philosophy 5 or 6	3
Chemical Laboratory—Chemistry 11	3
Advanced Zoölogy—Zoölogy 13	3
Economic Ornithology or Advanced Entomology—Zoölogy 7 or 9	3
Advanced Botany—Botany 7 or 14	3
Architectural Drawing—Drawing 40	3
Spanish—Spanish 3	3
Thesis Work	1 or 2

HOURS OF STUDY.

FRESHMEN CLASS FOR

Term	Day	Section.	8-9	9-10	10-11
Fall	Mon.	I			
		II			Chemistry 1
	Tues.	I	German 1	French 1	Mathematics 1
		II			Military Sci.
	Wed.	I	English 1		Chemistry 1
		II		English 1	
	Thu.	I	German 1	French 1	Mathematics 1
		II			
	Fri.	I	English 1	History 1 or 4	
		II		English 1	Chemistry 1
	Sat.	I	German 1	French 1	Mathematics 1
		II			
Winter	Mon.	I			Chemistry 2
		II			
	Tues.	I	German 2	French 2	Mathematics 3
		II			
	Wed.	I	English 2	History 2 or 5	
		II		English 2	Chemistry 2
	Thu.	I	German 2	French 2	Mathematics 3
		II			Military Sci.
	Fri.	I	English 2		
		II		English 2	Chemistry 2
	Sat.	I	German 2	French 2	Mathematics 3
		II			
Spring	Mon.	I		Physics 9	Physics 1
		II		Mech. Engin. 1	Horticulture 1
	Tues.	I	German 3	French 3	Botany 8
		II		Drawing 21 or 22	Drawing 3
	Wed.	I	Military Sci.	Phys cs 9	Physics 1
		II	English 3		Horticulture 1
	Thu	I	German 3	French 3	Botany 8
		II		Drawing 21 or 22	Drawing 3
	Fri.	I		English 3	Physics 1
		II	Military Sci.	Physics 9.	
	Sat.	I	German 3	French 3	Botany 8
		II		Drawing 21 or 22	Drawing 3

ALL FOUR YEARS' COURSES.

Day.	Section.	11-11.50	1.30-2.30	2.30-4
Mon.	I	Mathematics 1.....	Drawing 1.....	Drawing 19
	II	.....	Shop-work 1.	Shop-work 1
Tues.	I	Military Science....	Drawing 1.....	Drawing 19
	II	Mathematics 1.....	Shop-work 1.....	Shopwork 1
Wed.	I	.....	Mathematics 1....	.....
	II	History 1 or 4.....	.....	Mathematics 1
Thurs.	I	.....	Shop-work 1 or....	History 1 or 4
	II	Mathematics 1.....	Drawing 1.....	Drawing 19
Fri.	I	.....	Shop-work 1.....	Shop-work 1
	II	Mathematics 1.....	Drawing 1.....	Drawing 19
Sat.	I	.....	.....	.....
	II	Mathematics 1.....	.....	.....
Mon.	I	Mathematics 3.....	Drawing 2.....	Drawing 20
	II	.....	Shop-work 2.....	Shop-work 2
Tues.	I	.....	Drawing 2.....	Drawing 20
	II	Mathematics 3.....	Shop-work 2.....	Shop-work 2
Wed.	I	.....	Drawing 2 or.	Shop-work 2
	II	Mathematics 3.....	Shop-work 2 or....	Drawing 20
Thurs.	I	Military Science 2...	Shop-work 2 or....	History 2 or 5
	II	Mathematics 3.....	Drawing 2.....	Drawing 20
Fri.	I	.....	Shop-work 2.....	Shop-work 2
	II	History 2 or 5.....	Drawing 2.....	Drawing 20
Sat.	I	.....	.....	.....
	II	Mathematics 3.....	.....	.....
Mon.	I	History 3 or 6.....	Mathematics 4.....	Mathematics 4
	II	Chemistry 3.....	.....	.....
Tues.	I	Botany 8.....	Mathematics 4.....	Mathematics 4
	II	Drawing 3.....	.....	.....
Wed.	I	Chemistry 3.....	Mathematics 4.....	Mathematics 4
	II	Mech. Engin. 1.....	.....	.....
Thurs.	I	Botany 8.....	Shop-work 3.....	Shop-work 3
	II	Drawing 3.....	History 3 or 6.....	History 3 or 6
Fri.	I	Chemistry 3.....	Shop-work 3.....	Shop-work 3
	II	Mech. Engin. 1.....	History 3 or 6.....	History 3 or 6
Sat.	I	Botany 8.....	.....	.....
	II	Drawing 3.....	.....	.....

AGRICULTURE—SOPHOMORE CLASS.

Term	Day	8-9	9-10	10-11	11-11.50	1.30-2.30	2.30-4
Fall.....	Monday	Zoölogy 1	Zoölogy 1	Botany 9	Botany 9	Chemistry 4	Chemistry 4
	Tuesday	Agriculture 19	Zoölogy 1	Physics 2 & 3	German 4	Chemistry 4	Chemistry 4
	Wednesday	Agriculture 19	Botany 9	Military Science	.....	Chemistry 4	Chemistry 4
	Thursday	Zoölogy 1	Zoölogy 1	Physics 2 & 3	German 4	Agriculture 19	Agriculture 19
	Friday	Botany 4	Botany 4	Botany 9	Botany 9	Horticulture 2	Horticulture 2
	Saturday	.....	....	Physics 2 & 3	German 4	....	.....
Winter.	Monday	Zoölogy 4	Zoölogy 4	Horticulture 3	Horticulture 3	Chemistry 4	Chemistry 4
	Tuesday	.....	.....	Physics 4	German 5	Chemistry 4	Chemistry 4
	Wednesday	Botany 10	Horticulture 3	.....	.....	Chemistry 4	Chemistry 4
	Thursday	Zoölogy 4	Zoölogy 4	Physics 4	German 5	Horticulture 3	Horticulture 3
	Friday	Botany 10	Botany 10	Botany 10	Military Science	Zoölogy 4	Zoölogy 4
	Saturday	Botany 10	Botany 10	Physics 4	German 5	.....	.....
Spring..	Monday	Military Science	Horticulture 2	Horticulture 2	.....	Zoölogy 3	Zoölogy 3
	Tuesday	.....	Political Science 1	Agriculture 20	German 6	Horticulture 2	Horticulture 2
	Wednesday	.....	Political Science 1	Agriculture 20	Agriculture 20	Zoölogy 3	Zoölogy 3
	Thursday	.....	Political Science 1	Zoölogy 3	German 6	Botany 11	Botany 11
	Friday	Zoölogy 3	Political Science 1	Agriculture 20	.....	Botany 11	Botany 11
	Saturday	.....	Political Science 1	....	German 6	.....	....

AGRICULTURE—JUNIOR CLASS.

Term	Day	8-9	9-10	10-11	11-11.50	1.30-2.30	2.30-4
Fall. ...	Monday	Dairying 1 & 3	Dairying 1 & 3	....	Horticulture 4	Agriculture 2	Agriculture 2
	Tuesday	Chemistry 6	Dairying 1 & 3	Dairying 1 & 3	Agriculture 2	Horticulture 4	Horticulture 4
	Wednesday	Chemistry 6	Dairying 1 & 3	Zoölogy 5	Agriculture 2	Horticulture 4	Horticulture 4
	Thursday	Dairying 1 & 3	Dairying 1 & 3	Dairying 1 & 3	Dairying 1 & 3	.....	....
	Friday	Chemistry 6	.....	Zoölogy 5	Dairying 1 & 3	Zoölogy 5	Zoölogy 5
	Saturday	Military Science	Zoölogy 5	Zoölogy 5	Zoölogy 5	.....	.....
Winter.	Monday	English 7	.....	.....	*Agriculture 11 *Zoölogy 6 or 17	Agriculture 3	Agriculture 3
	Tuesday	English 4	Agriculture 10	.....	Forestry 1	Agriculture 11	.....
	Wednesday	Chemistry 7	.....	Agriculture 3	*Agriculture 11 *Zoölogy 6 or 17	Forestry 1	Forestry 1
	Thursday	English 4	Agriculture 10	.....	Forestry 1	.....	.....
	Friday	Chemistry 7	.....	Agriculture 3	*Agriculture 1 *Zoölogy 6 or 17	Agriculture 10	Agriculture 10
	Saturday	Military Science	.....	.....	Geology 1	.....	....
Spring..	Monday	*Zoölogy 7 or 9	Geology 1	Geology 1	Agriculture 4	.....	.....
	Tuesday	Horticulture 5	Horticulture 5	English 5	Agriculture 4	.....	....
	Wednesday	Agriculture 13	Geology 1	Geology 1	English 7	.....	.....
	Thursday	*Agriculture 12 *Zoölogy 7 or 9	Horticulture 5	English 5	Agriculture 13	Agriculture 4	Agriculture 4
	Friday	*Agriculture 12	Geology 1	Geology 1	Agriculture 13	Horticulture 5	Horticulture 5
	Saturday	*Agriculture 12 *Zoölogy 7 or 9	.....	Agriculture 13	Agriculture 13	.....	.....

*Elective.

AGRICULTURE.—SENIOR CLASS.

Term	Day	8–9	9–10	10–11	11–11.50	1.30–2.30	2.30–4
Fall	Monday	.....	*Forestry 2	.....	*Agriculture 14	Geology 2	Geology 2
	Tuesday	.....	.....	History 7	Horticulture 9	*Agriculture 14	Agriculture 15
	Wednesday	Geology 2	.....	*Forestry 2	Horticulture 9	*Agriculture 14	*Agriculture 14
	Thursday	.....	.....	History 7	Horticulture 9	*Forestry 2	*Forestry 2
	Friday	Geology 2	Geology 2	*Agriculture 14	.....	History 7	Agriculture 15
	Saturday	Geology 2	....	History 7	.....	.....	.....
Winter.	Monday	.....	.....	History 8	*Zoölogy 6 or 17	.....	....
	Tuesday	.....	Horticulture 6	Political Science 6	.....	*Agriculture 6	*Agriculture 6
	Wednesday	.....	*Agriculture 5	History 8	*Zoölogy 6 or 17	*Agriculture 6	*Agriculture 6
	Thursday	.....	Horticulture 6	Political Science 6	.....	*Agriculture 21	*Agriculture 21
	Friday	*Agriculture 21	*Agriculture 5	History 8	*Zoölogy 6 or 17	Horticulture 6	Horticulture 6
	Saturday	.....	*Agriculture 5	Political Science 6	.....	....	.....
Spring..	Monday	*Zoölogy 7 or 9	.....	.....	.....	*Horticulture 7	*Horticulture 7
	Tuesday	*Forestry 3	Agriculture 17	Meteorology 1	.....	.....	.....
	Wednesday	*Horticulture 8	.....	.....	Agriculture 16	*Horticulture 7	*Horticulture 7
	Thursday	*Forestry 3 *Zoölogy 7 or 9	Agriculture 17	Meteorology 1	Agriculture 16	*Forestry 3	*Forestry 3
	Friday	*Horticulture 8	.....	*Horticulture 7	Agriculture 16	.....	....
	Saturday	*Zoölogy 7 or 9	Agriculture 17	Meteorology 1	....	.....	.....

*Elective.

ENGINEERING.—SOPHOMORE CLASS.

Term	Day	8–9	9–10	10–11	11–11.50	1.50–2.30	2.30–4
Fall....	Monday	.....	Drawing 23	Drawing 23	Drawing 23	I Chemistry 5 II Shop-work 4	I Chemistry 5 II Shop-work 4
	Tuesday	Mathematics 5	Military Science	Physics 2 and 3	German 4	II Shop-work 4 I Chemistry 5	II Shop-work 4 I Chemistry 5
	Wednesday	Mathematics 5	Drawing 23	Drawing 23	Drawing 23	II Chemistry 5 I Shop-work 4	II Chemistry 5 I Shop-work 4
	Thursday	Mathematics 5	Mechanical Eng. 2	Physics 2 and 3	German 4	.....	.....
	Friday	Mathematics 5	.....	.....	I Shop-work 4	II Chemistry 5 I Shop-work 4	II Chemistry 5 I Shop-work 4
	Saturday	Mathematics 5	Mechanical Eng. 2	Physics 2 and 3	German 4	.....	.....
Winter.	Monday	.....	Drawing 25	Drawing 25	Drawing 25	I Chemistry 5 II Shop-work 5	I Chemistry 5 II Shop-work 5
	Tuesday	Mathematics 6	Mechanical Eng. 3	Physics 4 and 5	German 5	II Shop-work 5 I Chemistry 5	II Shop-work 5 I Chemistry 5
	Wednesday	Mathematics 6	Drawing 5	Drawing 5	Drawing 5	II Chemistry 5 I Shop-work 5	II Chemistry I Shop-work 5
	Thursday	Mathematics 6	Mechanical Eng. 3	Physics 4 and 5	German 5	....	.....
	Friday	Mathematics 6	.....	.....	I Shop-work 5	II Chemistry 5 I Shop-work 5	II Chemistry 5 I Shop-work 5
	Saturday	Mathematics 6	Military Science	Physics 4 and 5	German 5	.....	.....
Spring..	Monday	.....	.....	.....	Mechanical Eng. 22	Drawing 26	Drawing 26
	Tuesday	Mathematics 7	.....	Physics 5	German 6	Drawing 26	Drawing 26
	Wednesday	Mathematics 7	Mechanical Eng. 22	....	.....	Drawing 26	Drawing 26
	Thursday	Mathematics 7	Military Science	Physics 5	German 6	Drawing 26	Drawing 26
	Friday	Mathematics 7	.....	....	.....	Drawing 26	Drawing 26
	Saturday	Mathematics 7	.....	Physics 5	German 6	.....	.....

ELECTRICAL ENGINEERING.—JUNIOR CLASS.

Term	Day	8-9	9-10	10-11	11-11.50	1 30-2.3	2.30-4
Fall.....	Monday	.....	Electr. Engin. 1	Mech. Engin. 7	Electr. Engin. 4	Physics 6	Physics 6
	Tuesday	Drawing 27	Drawing 27	Drawing 27	Mech. Engin. 8	Physics 6	Physics 6
	Wednesday	Electr. Engin. 1	Mech. Engin. 7	.....	Electr. Engin. 4	Physics 6	Physics 6
	Thursday	Drawing 27	Drawing 27	Drawing 27	Mech. Engin. 8	.....	.....
	Friday	Electr. Engin. 1	Mech. Engin. 4	Electr. Engin. 4	Mech. Engin 8	.....	.....
	Saturday	Military Science	Mech. Engin. 4	.....	Mech. Engin. 8	....	....
Winter..	Monday	English 7	Electr. Engin. 2	Mech. Engin. 5	Electr. Engin. 5	Physics 7	Physics 7
	Tuesday	Drawing 28	Drawing 28	Drawing 28	Mech. Engin. 9	Physics 7	Physics 7
	Wednesday	Electr. Engin. 2	Mech. Engin. 5	.....	Electr. Engin. 5	Physics 7	Physics 7
	Thursday	Electr. Engin. 2	Mech. Engin. 5	.....	Mech. Engin. 9	.....	.....
	Friday	Drawing 28	Drawing 28	Drawing 28	Electr. Engin. 5	.....	.....
	Saturday	Military Science	Mech. Engin. 5	.....	Mech. Engin. 9	.....	.....
Spring..	Monday	Drawing 29	Drawing 29	Drawing 29	Electr. Engin. 6	Physics 8	Physics 8
	Tuesday	Mech. Engin. 5	.....	Mech. Engin. 10	Electr. Engin. 3	Physics 8	Physics 8
	Wednesday	Drawing 29	Drawing 29	Drawing 29	Electr. Engin. 6	Physics 8	Physics 8
	Thursday	Mech. Engin. 5	.....	Mech. Engin. 10	Electr. Engin. 3	.....	.....
	Friday	Mech. Engin. 5	Electr. Engin. 6	Mech. Engin. 10	.....	.....	.....
	Saturday	Mech. Engin. 5	Electr. Engin. 3	Mech. Engin. 10	Military Science	.....	.....

ELECTRICAL ENGINEERING—SENIOR CLASS.

Term	Day	8-9	9-10	10-11	11-11.50	1.30-2.30	2.30-4
Fall.....	Monday	.....	Mechanical Eng. 12	Mechanical Eng. 11	....	Electr. Eng. 15	Electr. Eng. 15
	Tuesday	Mechanical Eng. 11	Electrical Eng. 7	Electrical Eng. 10, 11 and 12	Electrical Eng. 7	....	.....
	Wednesday	Electrical Eng. 10, 11 and 12	Mechanical Eng. 12	Mechanical Eng. 11	.....	Electr. Eng. 15	Electr. Eng. 15
	Thursday	Mechanical Eng. 11	Mechanical Eng. 12	Electrical Eng. 10, 11 and 12	Electrical Eng. 10, 11 and 12	Mech. Eng. 14	Mech. Eng. 14
	Friday	.....	Electrical Eng. 7	.....	.....	Mech. Eng. 14	Mech. Eng. 14
	Saturday	.....	Electrical Eng. 7	.....	Electrical Eng. 7	.....	.....
Winter..	Monday	.....	.....	Electrical Eng. 8	Mechanical Eng. 17	Electr. Eng. 16	Electr. Eng. 16
	Tuesday	Electrical Eng. 8	.....	.....	Electrical Eng. 14	Electr. Eng. 16	Electr. Eng. 16
	Wednesday	.....	Electrical Eng. 13	Electrical Eng. 8	Mechanical Eng. 17	Mech. Eng. 15	Mech. Eng. 15
	Thursday	.....	Electrical Eng. 8	.....	Electrical Eng. 14	Mech. Eng. 15	Mech. Eng. 15
	Friday	....	Electrical Eng. 13	Electrical Eng. 8	Mechanical Eng. 17	Mech. Eng. 15	Mech. Eng. 15
	Saturday	Electrical Eng. 13	.....	.....	Electrical Eng. 14	.....	.....
Spring..	Monday	Electrical Eng. 13	Electrical Eng. 9	.....	Mechanical Eng. 18	Mech. Eng 16	Mech. Eng. 16
	Tuesday	Political Science 1	.....	.....	.....	Mech. Eng. 16	Mech. Eng. 16
	Wednesday	Political Science 1	Thesis	Thesis	Mechanical Eng. 18	Electr. Eng. 17	Electr. Eng. 17
	Thursday	Political Science 1	Thesis	Thesis	Thesis	Electr. Eng. 17	Electr. Eng. 17
	Friday	Political Science 1	.....	.....	.....	Thesis	Thesis
	Saturday	Political Science 1	Mechanical Eng. 18	.....	Electrical Eng. 9	.....	.....

MECHANICAL ENGINEERING.—JUNIOR CLASS.

Term	Day	8-9	9-10	10-11	11-11.50	1.30-2.30	2.30-4
Fall.....	Monday	.....	Electrical Eng. 1	Mechanical Eng. 7	.....	Physics 6	Physics 6
	Tuesday	Drawing 27	Drawing 27	Drawing 27	Mechanical Eng. 8	Physics 6	Physics 6
	Wednesday	Electrical Eng. 1	Mechanical Eng. 7	.....	.....	Physics 6	Physics 6
	Thursday	Drawing 27	Drawing 27	Drawing 27	Mechanical Eng. 8	Shop-work 6	Shop-work 6
	Friday	Electrical Eng. 1	Mechanical Eng. 4	Mechanical Eng. 8	Mechanical Eng. 8	Shop-work 6	Shop-work 6
	Saturday	Military Science	Mechanical Eng. 4	.....	Mechanical Eng. 8	.....	.....
Winter.	Monday	English 7	Electrical Eng. 2	Mechanical Eng. 5	.....	Physics 7	Physics 7
	Tuesday	Drawing 28	Drawing 28	Drawing 28	Mechanical Eng. 9	Physics 7	Physics 7
	Wednesday	Electrical Eng. 2	Mechanical Eng. 5	.....	.....	Physics 7	Physics 7
	Thursday	Electrical Eng. 2	Mechanical Eng. 5	.....	Mechanical Eng. 9	Shop-work 7	Shop-work 7
	Friday	Drawing 28	Drawing 28	Drawing 28	.....	Shop-work 7	Shop-work 7
	Saturday	Military Science	Mechanical Eng. 5	.....	Mechanical Eng. 9	.....	.....
Spring..	Monday	Drawing 29	Drawing 29	Drawing 29	.....	Physics 8	Physics 8
	Tuesday	Mechanical Eng. 5	.....	Mechanical Eng. 10	Electrical Eng. 3	Physics 8	Physics 8
	Wednesday	Drawing 29	Drawing 29	Drawing 29	.....	Physics 8	Physics 8
	Thursday	Mechanical Eng. 5	.....	Mechanical Eng. 10	Electrical Eng. 3	Shop-work 8	Shop-work 8
	Friday	Mechanical Eng. 5	.....	Mechanical Eng. 10	.....	Shop-work 8	Shop-work 8
	Saturday	Mechanical Eng. 5	Electrical Eng. 3	Mechanical Eng. 10	Military Science	.....	.....

MECHANICAL ENGINEERING.—SENIOR CLASS.

Term	Day	8-9	9-10	10-11	11-11.50	1.30-2 30	2.30-4
Fall.....	Monday	Electrical Eng. 20 and 21	.....	Mechanical Eng. 12	Mechanical Eng. 11	Shop-work 9	Shop-work 9
	Tuesday	Mechanical Eng. 11	Shop-work 9	Shop-work 9	Shop-work 9	.....	....
	Wednesday	Drawing 30	Mechanical Eng. 12	Mechanical Eng. 11	Electrical Eng. 20	Drawing 30	Drawing 30
	Thursday	Mechanical Eng. 11	Mechanical Eng. 12	Drawing 30	Electrical Eng. 20 and 21	Mech. Eng. 14	Mech. Eng. 14
	Friday	Drawing 30	Drawing 30	Drawing 30	.....	Mech. Eng. 14	Mech. Eng. 14
	Saturday	Drawing 30	Drawing 30	Drawing 30	.....	.....	.....
Winter.	Monday	.....	.....	Mechanical Eng. 20	Mechanical Eng. 17	Thesis	Thesis
	Tuesday	Drawing 31	.....	....	Mechanical Eng. 13	Thesis	Thesis
	Wednesday	Drawing 31	.....	Mechanical Eng. 20	Mechanical Eng. 17	Mech. Eng. 15	Mech. Eng. 15
	Thursday	Drawing 31	Drawing 31	Drawing 31	Mechanical Eng. 13	Mech. Eng. 15	Mech. Eng. 15
	Friday	Shop-work 10	Shop-work 10	Shop-work 10	Mechanical Eng. 17	Mech. Eng. 15	Mech. Eng. 15
	Saturday	.....	Mechanical Eng. 20	Mechanical Eng. 9	Mechanical Eng. 13	.....	.....
Spring..	Monday	.....	Mechanical Eng. 18	.....	Mechanical Eng. 18	Mech. Eng. 16	Mech. Eng. 16
	Tuesday	Drawing 32	Political Science 1	Thesis	Thesis	Mech. Eng. 16	Mech. Eng. 16
	Wednesday	.....	Political Science 1	Shop-work 11	Shop-work 11	Shop-work 11	Shop-work 11
	Thursday	Drawing 32	Political Science 1	.....	.....	Thesis	Thesis
	Friday	Political Science 1	Drawing 32	Drawing 32	Mechanical Eng. 18	Thesis	Thesis
	Saturday	Drawing 32	Political Science 1	.....	.....	.....	.....

CHEMICAL ENGINEERING.—SOPHOMORE CLASS.

Term	Day	8-9	9-10	10-11	11-11.50	1.30-2.30	2.30-4
Fall.....	Monday	....	Drawing 24	Drawing 24	Drawing 24	Chemistry 4	Chemistry 4
	Tuesday	Mathematics 5	....	Physics 2 & 3	German 4	Chemistry 4	Chemistry 4
	Wednesday	Mathematics 5	Drawing 24	Drawing 24	Drawing 24	Chemistry 4	Chemistry 4
	Thursday	Mathematics 5	Military Science	Physics 2 & 3	German 4	Chemistry 4	Chemistry 4
	Friday	Mathematics 5	.....	.....	....	Chemistry 4	Chemistry 4
	Saturday	Mathematics 5	.....	Physics 2 & 3	German 4	.....	.....
Winter.	Monday	.....	.....	.....	.....	Chemistry 10	Chemistry 10
	Tuesday	Mathematics 6	.....	Physics 4 & 5	German 5	Chemistry 10	Chemistry 10
	Wednesday	Mathematics 6	Chemistry 10	Chemistry 10	Chemistry 10	Chemistry 10	Chemistry 10
	Thursday	Mathematics 6	Military Science	Physics 4 & 5	German 5	Chemistry 10	Chemistry 10
	Friday	Mathematics 6	Chemistry 10	Chemistry 10	Chemistry 10	Chemistry 10	Chemistry 10
	Saturday	Mathematics 6	.....	Physics 4 & 5	German 5	.....	.....
Spring..	Monday	.....	Geology 1	Geology 1	.....	Chemistry 11	Chemistry 11
	Tuesday	Mathematics 7	.....	Physics 5	German 6	Chemistry 11	Chemistry 11
	Wednesday	Mathematics 7	Geology 1	Geology 1	.....	Chemistry 11	Chemistry 11
	Thursday	Mathematics 7	Military Science	Physics 5	German 6	Chemistry 8	Chemistry 8
	Friday	Mathematics 7	Geology 1	Geology 1	.....	Chemistry 8	Chemistry 8
	Saturday	Mathematics 7	.....	Physics 5	German 6	.....	....

CHEMICAL ENGINEERING.—JUNIOR CLASS.

Term	Day	8-9	9-10	10-11	11-11.50	1.30-2.30	2.30-4
Fall	Monday	Military Science	Military Science	Mech. Engin. 7	French 4	Chemistry 9	Chemistry 9
	Tuesday	Chemistry 6	Chemistry 11	Chemistry 11	Chemistry 11	Chemistry 11	Chemistry 11
	Wednesday	Chemistry 6	Mech. Engin. 7		French 4	Chemistry 9	Chemistry 9
	Thursday	Chemistry 11	Chemistry 11	Chemistry 11	Chemistry 11	Chemistry 11	Chemistry 11
	Friday	Chemistry 6	Mech. Engin. 4		French 4	Chemistry 11	Chemistry 11
	Saturday		Mech. Engin. 4				
Winter	Monday	English 7		Mech. Engin. 5	French 5	Physics 7	Physics 7
	Tuesday	Chemistry 11	Chemistry 11	Chemistry 13		Physics 7	Physics 7
	Wednesday		Mech. Engin. 5		French 5	Physics 7	Physics 7
	Thursday		Mech. Engin. 5	Chemistry 13		Chemistry 11	Chemistry 11
	Friday	Chemistry 11	Chemistry 11	Chemistry 11	French 5	Chemistry 11	Chemistry 11
	Saturday	Military Science	Mech. Engin. 5				
Spring	Monday	Chemistry 11	Chemistry 11	Chemistry 11	French 6	Physics 8	Physics 8
	Tuesday	Mech. Engin. 6		English 5	Chemistry 14	Physics 8	Physics 8
	Wednesday	Chemistry 11	Chemistry 11	Chemistry 11	French 6	Physics 8	Physics 8
	Thursday	Mech. Engin. 6		English 5	Chemistry 14	Chemistry 11	Chemistry 11
	Friday	Mech. Engin. 6			French 6	Chemistry 11	Chemistry 11
	Saturday	Mech. Engin. 6			Military Sci.		

CHEMICAL ENGINEERING.—SENIOR CLASS.

Term	Day	8-9	9-10	10-11	11-11.50	1.30-2.30	2.30-4
Fall.....	Monday	Chemistry 11 or 21	Chemistry 11 or 21	.....	Electrical Eng. 22	Chemistry 11 or 21	Chemistry 11 or 21
	Tuesday	Chemistry 11 or 21	Chemistry 11 or 21	Chemistry 11 or 21	Mechanical Eng. 8	Chemistry 11 or 21	Chemistry 11 or 21
	Wednesday	Shop-work 4	Shop-work 4	Shop-work 4	Shop-work 4	Elec. Eng. 22	Elec. Eng. 22
	Thursday	Chemistry 11 or 21	Chemistry 11 or 21	Chemistry 11 or 21	Mechanical Eng. 8	Chemistry 11 or 21	Chemistry 11 or 21
	Friday	Electrical Eng. 22	Chemistry 11 or 21	Chemistry 11 or 21	Mechanical Eng. 8	Chemistry 11 or 21	Chemistry 11 or 21
	Saturday	....	Chemistry 12	.....	Mechanical Eng. 8	.....	.....
Winter .	Monday	Chemistry 20 or 21	Chemistry 20 or 21	Chemistry 20 or 21	Electrical Eng. 23	Chemistry 20 or 21	Chemistry 20 or 21
	Tuesday	English 4	.....	.....	Chemistry 15	Chemistry 20 or 21	Chemistry 20 or 21
	Wednesday	Chemistry 20 or 21	Chemistry 20 or 21	Chemistry 20 or 21	Electrical Eng. 23	Chemistry 20 or 21	Chemistry 20 or 21
	Thursday	English 4	.....	.....	Chemistry 15	Chemistry 20 or 21	Chemistry 20 or 21
	Friday	Chemistry 20 or 21	Chemistry 20 or 21	Chemistry 20 or 21	Electrical Eng. 23	Chemistry 20 or 21	Chemistry 20 or 21
	Saturday	Chemistry 20 or 21	Chemistry 20 or 21	Chemistry 20 or 21	Chemistry 12	.....	.....
Spring..	Monday	Chemistry 20 or 21	Chemistry 20 or 21	Chemistry 20 or 21	Chemistry 20 or 21	Chemistry 20 or 21	Chemistry 20 or 21
	Tuesday	.....	Political Science 1	English 5	Chemistry 16	Chemistry 20 or 21	Chemistry 20 or 21
	Wednesday	.....	Political Science 1	.....	.....	Chemistry 20 or 21	Chemistry 20 or 21
	Thursday	.....	Political Science 1	English 5	Chemistry 16	Chemistry 20 or 21	Chemistry 20 or 21
	Friday	.....	Political Science 1	Chemistry 19	Chemistry 19	Chemistry 19	Chemistry 19
	Saturday	.....	Political Science 1	.....	Chemistry 12	.....	....

GENERAL COURSE.—SOPHOMORE CLASS.

Term	Day	8-9	9-10	10-11	11-11.50	1.30-4	
Fall.....	Monday	Zoölogy 1	Zoölogy 1	Bo any 9	....	Spanish 1	Chemistry 4
	Tuesday	Mathematics 5	Zoölogy 1	Physics 2 and 3	German 4	Spanish 1	Chemistry 4
	Wednesday	Mathematics 5	Botany 9	Military Science	History 1 or 4	Spanish 1	Chemistry 4
	Thursday	Mathematics 5 Zoölogy 1	Zoölogy 1	Physics 2 and 3	German 4	History 1 or 4	
	Friday	Mathematics 5	History 1 or 4	History 1 or 4 Botany 9	History 1 or 4 Botany 9	....	
	Saturday	Mathematics 5	.....	Physics 2 and 3	German 4	.....	
Winter...	Monday	Zoölogy 4	Zoölogy 4	Physics 13	Philosophy 1	Spanish 2	Chemistry 4
	Tuesday	Mathematics 6	Military Science	Physics 4 and 5	German 5	Spanish 2	Chemistry 4
	Wednesday	Mathematics 6 Drawing 33 Botany 10	History 2 or 5 Drawing 33	Physics 13	Philosophy 1	Spanish 2	Chemistry 4
	Thursday	Mathematics 6	Zoölogy 4	Physics 4 and 5	German 5	History 2 or 5	
	Friday	Mathematics 6 Drawing 33 Botany 10	Drawing 33 Botany 7	Botany 10	History 2 or 5	Zoölogy 4	
	Saturday	Mathematics 6 Botany 10	Physics 13 Botany 10	Physics 4 and 5	German 5	....	
Spring...	Monday	Military Science	Drawing 34	Drawing 34	History 3 or 6	Zoölogy 3 Spanish 3	Chemistry 10
	Tuesday	Mathematics 7	Political Science 1	Physics 5	German 6	Chemistry 10 Spanish 3	Botany 11
	Wednesday	Mathematics 7	Political Science 1	Drawing 12 Philosophy 5	Drawing 12	Chemistry 10 Spanish 3	Zoölogy 3
	Thursday	Mathematics 7	Political Science 1	Zoölogy 3 Physics 5	German 6	History 3 or 6	Botany 11
	Friday	Mathematics 7 Zoölogy 3	Political Science 1	Philosophy 5 Drawing 34	Drawing 34	History 3 or 6	
	Saturday	Mathematics 7	Political Science 1	Physics 5	German 6	.....	

GENERAL COURSE.—JUNIOR CLASS.

Term	Day	8-9	9-10	10-11	11-11.50	1.30-4	
Fall.....	Monday	.....	.....	.....	French 4	Chemistry 4 or 10 Spanish 1	Physics 6
	Tuesday	Drawing 35 Chemistry 6	Drawing 35	History 7	Philosophy 3	Chemistry 4 or 10 Spanish 1	Physics 6
	Wednesday	Chemistry 6	Mathematics 8	Zoölogy 5	French 4	Chemistry 4 or 10 Spanish 1	Physics 6
	Thursday	Military Science 2	.....	History 7	Philosophy 3	Drawing 35	Drawing 35
	Friday	Drawing 35 Chemistry 6	Drawing 35 Mathematics 8	Zoölogy 5 History 7	French 4 Philosophy 3	History 7	Zoölogy 5
	Saturday	.....	Zoölogy 5	Zoölogy 5	Zoölogy 5	.....	.....
Winter...	Monday	English 7	....	History 8	French 5 Zoölogy 6 or 17	Chemistry 4 or 11 Spanish 2	Physics 7
	Tuesday	English 4	Philosophy 4	Political Science 4 or 6	.....	Chemistry 4 or 11 Spanish 2	Physics 7
	Wednesday	Chemistry 7	Mathematics 9	History 8	French 5 Zoölogy 6 or 17	Chemistry 4 or 11 Spanish 2	Physics 7
	Thursday	English 4	Philosophy 4	Political Science 4 or 6	....	Drawing 36	.....
	Friday	Chemistry 7	Mathematics 9	History 8	French 5 Zoölogy 6 or 17	Drawing 36	.....
	Saturday	Military Science	Philosophy 4	Political Science 4 or 6	....	....	
Spring...	Monday	Zoölogy 7 or 9	Geology 1	Geology 1	French 6	Chemistry 10 or 11 Spanish 3	Physics 8
	Tuesday	Philosophy 10	Military Science	English 5	Political Science 5 or 7	Chemistry 10 or 11 Spanish 3	Physics 8
	Wednesday	.....	Geology 1	Geology 1	French 6	Chemistry 10 or 11 Spanish 3	Physics 8
	Thursday	Philosophy 10 Zoölogy 7 or 9	.....	English 5	Political Science 5 or 7	Drawing 37	History 9
	Friday	....	Geology 1	Geology 1	French 6	Drawing 37	.....
	Saturday	Philosophy 10 Zoölogy 7 or 9	.....	Drawing 37 History 9	Political Science 5 or 7	....	

GENERAL COURSE.—

Term	Day	8-9	9-10	10-11
Fall	Monday			French 7
	Tuesday.	Elec. Eng. 24	Political Sci. 2 & 3	Phil. 11
	Wednesday.	Geology 2 German 7	Political Sci. 2 & 3	French 7
	Thursday	Elec. Eng. 24	Political Sci. 2 & 3	Phil. 11.
	Friday	German 7 Geology 2	Geology 2	French 7
	Saturday	Geology 2	Political Sci. 2 & 3	Phil. 11
Winter.	Monday.		Mathematics 6	French 8
	Tuesday		Philosophy 4	Political Sci. 4 or 6
	Wednesday	German 8.	Mathematics 10	French 8
	Thursday		Philosophy 4	Political Sci. 4 or 6
	Friday	German 8	Mathematics 10	French 8
	Saturday		Philosophy 4	Political Sci. 4 or 6
Spring	Monday	Zoölogy 7 or 9	Mathematics 11	French 9
	Tuesday	Philosophy 10		Meteorology 1
	Wednesday	German 9	Mathematics 11	French 9
	Thursday	Zoölogy 7 or 9 Philosophy 10		Meteorology 1
	Friday	German 9	Mathematics 11	French 9
	Saturday	Zoölogy 7 or 9 Philosophy 10		Meteorology 1

SENIOR CLASS.

Day	11–11.50	1.30–4	
Monday.....	.....	Drawing 38	Zoölogy 11
	.....	Botany 5	Geology 2
	.....	Spanish 1	Chemistry 10 or 11
Tuesday.....	Philosophy 3	Zoölogy 11	Chemistry 10 or 11
	.....	Spanish 1	Drawing 38
	.....	Botany 5	
Wednesday	.....	Zoölogy 11	Chemistry 10 or 11
	.....	Spanish 1	Drawing 38
	.....	Botany 5	
Thursday ...	Philosophy 3	Zoölogy 11	
Friday.....	Political Science 2 or 3	.....	
Saturday....	Philosophy 3	.....	
	Elec. Eng. 24	.....	
Monday.....	Zoölogy 6 or 17	Chemistry 11	Zoölogy 12
	.....	Botany 6	Drawing 39
	.....	Spanish 2	
Tuesday....	English 8	Chemistry 11	Zoölogy 12
	.....	Botany 6	Drawing 39
	.....	Spanish 2	
Wednesday	Zoölogy 6 or 17	Chemistry 11	Zoölogy 12
	.....	Botany 6	Drawing 39
	.....	Spanish 2	
Thursday ...	English 8	.....	
Friday.....	Zoölogy 6 or 17	Mathematics 6	
Saturday....	English 8	.....	
Monday.....	.....	Chemistry 11	Zoölogy 13
	.....	Botany 7	Drawing 40
	.....	Spanish 3	
Tuesday	Political Science 5 or 7	Spanish 3	English 9
	.....	Zoölogy 13	Chemistry 11
	.....	Drawing 40	Botany 7
Wednesday	English 9	Spanish 3	Chemistry 11
	.....	Zoölogy 13	Botany 7
	.....	Drawing 40	
Thursday...	Political Science 5 or 7	.....	
Friday.....	English 9	.....	
Saturday....	Political Science 5 or 7	.....	

TWO YEARS' COURSE IN AGRICULTURE.

This course was established by the Legislature in 1895. Its aim is to provide an opportunity for those students whose circumstances are such that it would be impossible for them to take a four years' collegiate course in agriculture, but yet who are anxious and would be greatly benefited by taking a less extended training for their life work.

The course is especially desirable for the young, bright boys of the farm who expect to make a business of some line of agricultural or horticultural work. The course of study is in part the same as that which the students of the long course take. As thorough instruction is given in agronomy, animal industry, dairying, horticulture, forestry, economic entomology, botany and the underlying sciences as the time will permit. The second year contains optional work, so that it is possible for students to specialize in horticulture, animal industry or dairying.

Ten hours per week on the average are spent in practical work upon the farm, in the barn, greenhouses or shops.

The course is open to "students who can pass a fair and reasonable examination in reading, spelling, writing, arithmetic, English grammar, geography and history of the United States."

For those who do not bring certificates to show their proficiency in these subjects an entrance examination in geography, arithmetic, English and United States history will be given on Tuesday afternoon and Wednesday morning of the opening week of school. A specimen list of the questions for this examination will be found on pages 181–183.

No degree is given on the completion of this course, but a certificate is issued stating fully the work done.

COURSE OF STUDY FOR FIRST YEAR OF TWO-YEAR COURSE.

FALL TERM.

	Exercises per week.
Mathematics 12	2
English 11 and 1	5
Botany 1	3
Zoölogy 14	3
Horticulture 1	1
Agriculture 1	3
Agriculture 18	3
Military Science	1

WINTER TERM.

Mathematics 13	3
English 2	2
Shop Work 12	2
Zoölogy 15	5
Botany 2	3
Horticulture 3	3
Military Science	1

SPRING TERM.

English 3	1
Physics 14	3
Botany 3	3
Dairying 7 and 3	6
Zoölogy 3	4
Chemistry 22	3
Military Science	1

COURSE OF STUDY FOR SECOND YEAR OF TWO-YEAR COURSE.

FALL TERM.

	Exercises per week.
Dairying 4	3
Botany 4	3
Horticulture 2	1
Horticulture 4	3
Physics 15	3
Agriculture 19	3

	Exercises per week.
Agriculture 2	3
Military Science	1
WINTER TERM.	
*Agriculture 21	2
*Dairying 2	3
Agriculture 3	3
Agriculture 5	3
Agriculture 8	3
Forestry 1	3
Agriculture 11	4
Military Science	1
SPRING TERM.	
Shop Work 13	2
Horticulture 2	2
Horticulture 5	3
Agriculture 12	3
Agriculture 4	3
Agriculture 13	4
Agriculture 20	3
Military Science	1

*Elective.

SCHEDULE OF HOURS FOR TWO-YEAR COURSE.

FIRST YEAR—FALL TERM.

Day	8-9	9-10	10-11	11-12	1.30-2.30	2.30-4
Monday		Agriculture 1	Agriculture 18		Horticulture 1	Horticulture
Tuesday	English 11	Mathematics 12	Military Science	Agriculture 18	Botany 1	Botany 1
Wednesday	English 1	Agriculture 1	Zoölogy 14	Zoölogy 14	Botany 1	Botany 1
Thursday	English 11	Botany 1	Agriculture 1	Zoölogy 14	Zoölogy 14	Zoölogy 14
Friday	English 1		Agriculture 1	Agriculture 1	Agriculture 18	Agriculture 18
Saturday	English 11	Mathematics 12				

WINTER TERM.

Monday		Shop-work 12	Shop-work 12	Shop-work 12	Zoölogy 15	Zoölogy 15
Tuesday	Zoölogy 15	Horticulture 3	Zoölogy 15	Zoölogy 15	Botany 2	Botany 2
Wednesday	English 2	Mathematics 13			Horticulture 3	Horticulture 3
Thursday		Mathematics 13	Military Science		Zoölogy 15	Zoölogy 15
Friday	English 2	Shop-work 12	Shop-work 12	Shop-work 12	Horticulture 3	Horticulture 3
Saturday	Botany 2	Mathematics 13	Botany 2	Botany 2		

SPRING TERM.

Monday	Dairying 7 & 3	Dairying 7 & 3	Dairying 7 & 3		Zoölogy 3	Zoölogy 3
Tuesday	Dairying 7 & 3		Physics 14	Chemistry 22	Botany 3	Botany 3
Wednesday	Dairying 7 & 3	Dairying 7 & 3	Dairying 7 & 3	Physics 14	Zoölogy 3	Zoölogy 3
Thursday	Dairying 7 & 3	Dairying 7 & 3	Zoölogy 3	Chemistry 22	Botany 3	Botany 3
Friday	Military Science	English 3		Physics 14		
Saturday	Dairying 7 & 3		Botany 3	Chemistry 22		

SCHEDULE OF HOURS FOR TWO-YEAR COURSE.

SECOND YEAR.—FALL TERM.

Day	8-9	9-10	10-11	11-12	1.30-2.30	2.30-4
Monday.....	Dairying 4	Dairying 4	Physics 15	Horticulture 4	Agriculture 2	Agriculture 2
Tuesday.....	Agriculture 19	Botany	Botany 4	Agriculture 2	Horticulture 4	Horticulture 4
Wednesday..	Agriculture 19	Physics 15	Military Science	Agriculture 2	Horticulture 4	Horticulture 4
Thursday.....	Dairying 4	Dairying 4	Botany 4	Physics 15	Agriculture 19	Agriculture 19
Friday.....	Botany 4	Botany 4	.....	.....	Horticulture 2	Horticulture 2
Saturday.....	Dairying 4	Dairying 4	Dairying 4	.....	.....	.....

WINTER TERM.

Monday.....	Dairying 2	Dairying 2	Dairying 2	Agriculture 11	Agriculture 3	Agriculture 3
Tuesday.....	.....	Agriculture 10	Military Science	Forestry 1	Agriculture 11	.....
Wednesday..	.....	Agriculture 5	Agriculture 3	Agriculture 11	Forestry 1	Forestry 1
Thursday.....	.....	Agriculture 10	Dairying 2	Forestry 1	.....	.....
Friday.....	.....	Agriculture 5	Agriculture 3	Agriculture 11	Agriculture 10	Agriculture 10
Saturday.....	.....	Agriculture 5	Dairying 2	Dairying 2	.....	.....

SPRING TERM.

Monday.....	Military Science	Horticulture 2	Horticulture 2	Agriculture 4	Shop-work 13	Shop-work 13
Tuesday.....	Horticulture 5	Horticulture 5	Agriculture 20	Agriculture 4	Horticulture 2	Horticulture 2
Wednesday...	Agriculture 13	....	Agriculture 20	Agriculture 20	Shop-work 13	Shop-work 13
Thursday.....	Agriculture 12	Horticulture 5	.....	Agriculture 13	Agriculture 4	Agriculture 4
Friday.....	Agriculture 12	.....	Agriculture 20	Agriculture 13	Horticulture 5	Horticulture 5
Saturday.....	Agriculture 12	.....	Agriculture 13	Agriculture 13	.....	.....

TEN WEEKS' COURSE IN AGRICULTURE.

The college offers a Winter Course in Agriculture, beginning Tuesday, January 9, and continuing until Friday, March 16, 1906.

No entrance examinations are required for this course, but students taking it must possess a good common school education. The course is especially desirable for students of mature years who can find the time to come from the farm during the winter and study some of the principles of agricultural science.

The courses of study offered are dairying, stock feeding, principles of breeding, veterinary elements, poultry, breeds of dairy cattle, greenhouse management, forestry, soil physics, botany and entomology, together with practical work in the creamery, forge, wood and machine shops and greenhouses.

Since the hours of study for the above named courses are scheduled on other pages of the catalogue, they are not repeated here in a separate schedule. Those contemplating taking the course should decide what studies they wish to pursue and then make out a schedule of hours for themselves.

A fee of $5 is charged for tuition.

The expenses of the course may be estimated as follows:

Room and board, 10 weeks at $4	$40.00
Tuition fee	5.00
Books	5.00
Total	$50.00

Applicants should report at the president's office in Thompson Hall on Tuesday, January 9, 1906.

TEN WEEKS' COURSE IN DAIRYING OR DAIRY SCHOOL.

The eleventh annual Dairy School of the New Hampshire College of Agriculture and the Mechanic Arts will open on Tuesday, January 9, and continue 10 weeks. The object of this school is to furnish a broad and substantial foundation for those who would become successful creamery managers or dairy farmers. It offers a short route to a successful career that must otherwise require years of experience to attain. The subjects taught have a practical bearing on the every-day affairs connected with the various branches of the dairy industry.

TUITION, EXPENSES, ETC.

There is no age limit for students, and no entrance examination is required. A tuition fee of five dollars is payable at the beginning of the term; other expenses, including books, room and board for 10 weeks will amount to approximately sixty dollars.

Owing to the limited space for class work in the dairy building, the number of students must necessarily be limited to the men who first make application for admission.

A detailed description of the studies offered is here given.

Students completing the required work of the Dairy School and passing satisfactory examinations in all subjects will be given a certificate.

For further information and descriptive circular, address New Hampshire College of Agriculture and the Mechanic Arts, Durham, N. H.

DAIRY BUILDING AND EQUIPMENT.

The dairy building is a wooden structure of one and one-half stories with basement. It is divided into rooms for

testing, separating and churning. There is also an engine room and an office for the dairy instructor.

All available space is occupied by the various forms of separators, milk testers, milk coolers, churns, butter-workers, etc. Dairy students are taught to use all the latest and best appliances obtainable. Steam power is supplied by the large boilers at the power house. In addition to the product of the college herd, milk and cream are received from about thirty farms in Durham and vicinity. Through this arrangement the college furnishes plenty of milk for practice work, and provides for a complete and practical training in creamery and dairy management.

MILK AND ITS PRODUCTS.

Instructor Ivan C. Weld.

Lectures and recitations on the secretion, nature and composition of milk, its uses and value as an article of food. It also deals with causes and conditions influencing the quality of milk and the care of milk on the farm.

Class-room work is supplemented by daily practice in the creamery. The student is trained to perform all parts of the work and to thoroughly understand the details that make possible the production of fine butter.

The student will study the construction, operation and care of the various appliances used in the dairy or creamery, and will be required to take apart and assemble the various machines, operate them carefully and efficiently, and present a written description of each machine and the result of his investigations with special reference to capacity, speed and efficiency. Plans of dairy and creamery buildings, with estimates for building will be required.

MILK TESTING.

Instructor Ivan C. Weld.

The use of the Babcock test in apportioning the money value of milk is now regulated by state law and the value of the test in the successful management of the dairy herd

has created a demand for practical training. The course will include lectures and recitations on the principles of the Babcock test and its application on the dairy farm and in the creamery or milk inspector's laboratory. A careful study of all its details will be required. Under the guidance of the instructor the student will practice testing milk, cream, skim-milk and buttermilk until fully competent to perform the work for himself or for others. In connection with the lactometer the test will be made the subject of practice in estimating the solids of milk.

CHEMISTRY OF MILK AND BUTTER.

Professor Fred W. Morse.

The subject is taken up in a course of 10 lectures, illustrated by experiments and specimens, and includes the properties and separation of the different constituents of milk, fat, casein, albumen, sugar, etc., the composition of butter and butter-fat and the properties and effects of preservatives.

DAIRY BACTERIOLOGY.

Instructor Ivan C. Weld.

Lectures, recitations and demonstrations, covering the more important facts in the relation of bacteria to dairying, with instruction and practice in pasteurizing milk and cream for market or butter making and in preparing and using cultures in ripening cream.

BOILERS AND ENGINES.

Assistant Professor E. H. Hancock.

Lectures will be given on the construction, operation and care of boilers, motors, steam and gasoline engines. The lectures will be followed by practical demonstrations and practice in the management of the various motive powers. Instruction will also be given in pipe cutting and fitting and other work incidental to the management of a steam plant.

INSECTS AFFECTING CATTLE.

Professor E. Dwight Sanderson.

Lectures on the horn-fly, warble-fly, cattle lice and similar pests, with especial reference to their life histories and methods of combating them.

BREEDS AND BREEDING.

Assistant Professor E. L. Shaw.

Lectures and recitations upon the origin, history, distribution, characteristics, adaptability and standard of excellence of the pedigreed breeds of dairy cattle, with special reference to the selection of breeds and individual animals for the dairy herd.

Lectures and recitations upon the principles of breeding as exhibited through the laws of heredity, variation and selection; methods of breeding, including a discussion of in-breeding, cross-breeding and influence of environment.

Practice in judging the dairy breeds.

FEEDS AND FEEDING.

Assistant Professor E. L. Shaw.

Lectures and recitations upon the composition and digestibility of feeding stuffs; the preservation and preparation of coarse fodders, ensilage; grinding, steaming and cooking food. A careful study of the different feeds upon the market and their value in a dairy feeding ration. Practice will be given in computing and compounding rations for the dairy cow.

DISEASES OF CATTLE.

Assistant Professor E. L. Shaw.

Lectures and recitations upon the anatomy of the cow, with special reference to the digestive, reproductive and milk-producing organs, the common diseases, the causes and the methods of treatment.

AGRICULTURAL EXPERIMENT STATION.

This department of the college is provided for by the National Government, at an annual expense of $15,000.

The Act of Congress provides,—

"That it shall be the object and duty of said Experiment Stations to conduct original researches or verify experiments on the physiology of plants and animals; the diseases to which they are severally subject, with the remedies for the same; the chemical composition of useful plants at their different stages of growth; the comparative advantages of rotative cropping, as pursued under a varying series of crops; the capacity of new plants or trees for acclimation; the chemical composition of manures, natural or artificial, with experiments designed to test their comparative effects on crops of different kinds; the adaptation and value of grasses and forage plants; the composition and digestibility of the different kinds of food for domestic animals; the scientific and economic questions involved in the production of butter and cheese; and such other researches or experiments bearing directly on the agricultural industry of the United States as may in each case be deemed advisable, having due regard to the varying conditions and needs of the respective states and territories."

COMMENCEMENT, 1905.

On Commencement Day, June 7, 1905, the following degrees were conferred:

BACHELORS OF SCIENCE.

IN AGRICULTURE.

Harold Nims Knight, Marlborough.
Fred Silver Putney, Hopkinton.
John Leslie Randall, Lee.
Elmer Seth Savage, Lancaster.
Frank Alvin Tinkham, Grafton.

IN CHEMISTRY.

Cleon Orestes Dodge, Sunapee.
Fred Harvey Heath, Warner.
William Orrin Robinson, Marlborough.

IN ELECTRICAL ENGINEERING.

John Henry Chesley, Rockingham.
Harry Linwood Hayes, Exeter.
Joseph Wesley Moreton, Medford, Mass.
Orlo Dudley Mudgett, Gilmanton.
Horace James Pettee, Durham.

IN GENERAL COURSE.

Harry Union Russell, West Derry.
Castine Caroline Swanson, Cambridge, Mass.

UNCLASSIFIED.

Silas Bryden Hayden, South Natick, Mass.
Warren Chauncey Hayes, Durham.
Arthur Mahlon Pike, Dover.

Certificates.

Certificates from the Two Years' Course in Agriculture were awarded to—

Arthur Garfield Dunn, Harrisville.
Henry Newton Gowing, Dublin.

HONORARY DEGREES.

The degree of M. S. was conferred upon—

His Excellency John McLane, Governor of New Hampshire, Trustee New Hampshire College, 1905–1907.

Edward Woods, Esq., of Bath, Trustee, 1893–1896.

Prof. Jeremiah W. Sanborn of Gilmanton, Trustee, 1896–1899.

James E. Shepard, Esq., of New London, Trustee, 1899–1902.

PRIZE RECORD FOR 1904.

BAILEY PRIZE—$10.

Given by Dr. C. H. Bailey of the Class of '79, and E. A. Bailey of the Class of '85.

Cleon Orestes Dodge.

ERSKINE MASON MEMORIAL PRIZE.

Fred Silver Putney.

SENIOR SHOWING SPECIAL APTITUDE FOR MILITARY SERVICE.

Name Reported to Military Secretary of the Army and to Adjutant-General of the State.

Elmer Seth Savage.

WINNER OF INDIVIDUAL PRIZE DRILL.

For Excellence in Manual of Arms.

Francis Ward Woodman.

HONORABLE MENTION.

Merritt Chase Huse.

PRIZE SWORD.

For Excellence in Handling a Company and Battalion at Drill.

Ernest Luther Converse.

Valentine Smith Scholarships are held by—

John D. Clark, '06.
J. Glenn Powers, '07.
W. W. Kirkpatrick, '08.
William S. Campbell, '09.

ROSTER OF BATTALION.

For 1905–1906.

COMMANDANT.

First Lieut. William E. Hunt, Eighth U. S. Infantry.

CADET OFFICERS.

Maj. Willis C. Campbell.
First. Lieut. and Adjt. W. G. Murchie.
Second Lieut. and Q. M. J. G. Powers.
Sergt. Maj. F. D. Lane.
Q. M. Sergt. J. H. Priest.

Company A.	Company B.
Capt. N. S. Franklin.	Capt. E. L. Converse.
1st Lieut. E. J. Roberts.	1st Lieut. A. Broggini.
2d Lieut. F. W. Randall.	2d Lieut. C. A. Dodge.

FIRST SERGEANTS.

L. D. Batchelor.	H. E. Ingham.

SERGEANTS.

A. J. Woodward.	F. W. Woodman
M. C. Huse.	H. D. Walker.
B. C. Noyes.	L. A. Carlisle.
G. D. Neville.	R. E. Wadleigh

CORPORALS.

A. M. Batchelder.	P. W. Goodsoe.
D. F. Smalley.	W. W. Evans.
C. F. Cone.	A. H. Barton.
F. Clough.	E. R. Fellows.
W. L. Adams.	H. E. Batchelder.
G. A. Perley.	S. F. Hill.

MUSICIANS.

P. R. Berry.	M. G. Buss.

STUDENTS.

a—Agricultural Course; *c*—Course in Technical Chemistry; *g*—General Course; *m e*—Mechanical Engineering; *e e*—Electrical Engineering; *u*—Unclassified. Sophomores in the Engineering Courses are designated by *e* only. Freshmen are not classified in courses.

POST-GRADUATE.

Name.	Residence.	Room.
Randall, John Leslie	*Lee.*	Lee.
Robinson, William Orrin	*Marlborough.*	Zeta House.

SENIORS.

Barnes, Stuart Kenrick *c*	*Walpole.*	Delta Hall.
Batchelder, Charles S. *a*	*South Hampton.*	Nesmith Hall.
Campbell, Willis Cassius *u*	*West Windham.*	Kappa Sigma House.
Clark, John Dustin *g*	*Nashua.*	Kappa Sigma House.
Clement, Clarence Elbert *a*	*Derry.*	Mr. Manley's.
Converse, Ernest Luther *g*	*Amherst.*	Delta Hall.
Franklin, Neil Starr *e e*	*Bernardston, Mass.*	Kappa Sigma House.
Gooch, William Safford *e e*	*Exeter.*	Exeter.
Gowen, Ralph Edward *m e*	*Stratham.*	Delta Hall.
Roberts, Edwin Jay *c*	*Laconia.*	Delta Hall.
Swain, Roy Vance *m e*	*Barrington.*	Delta Hall.

JUNIORS.

Batchelor, Leon Dexter *a*	*West Upton, Mass.*	Kappa Sigma House.
Berry, Philip Ray *e*	*Alton.*	Miss Berry's.
Broggini, Andrew *e*	*Concord.*	Kappa Sigma House.
Dodge, Carl Austin *c*	*New Boston.*	Kappa Sigma House.
Fuller, Carl Tilson *c*	*Nashua.*	Zeta House.
Handy, Waylon Lester *a*	*Swanzey.*	
Hardy, Edwin Davis *m e*	*Nashua.*	Zeta House.
Ingham, Harry Edward *e*	*Nashua.*	Kappa Sigma House.
Jenness, Cyrus Fremont *a*	*Gonic.*	Kappa Sigma House.
Johnson, Allen Montague *e*	*Nashua.*	Zeta House.
Lane, Frank Davis *m e*	*Manchester.*	Kappa Sigma House.
Littlefield, Ralph Albion *a*	*Portsmouth.*	Mrs. H. Mathes'.
Murchie, William Ewart *e*	*Concord.*	Kappa Sigma House.
Noyes, Bernard C. *a*	*Landaff.*	Thompson Hall.
Powers, John Glenn *a*	*Concord.*	Mr. Schoonmaker's.
Purrington, Wallace Fuller *c*	*South Yarmouth, Mass.*	Zeta House.

Name.	Residence.	Room.
Randall, Frank Wiggin *e*	*Portsmouth.*	Delta Hall.
Stockwell, Franklin Emmons *a*	*Lancaster.*	Zeta House.
Townsend, Ellice Storrs *g*	*Lebanon.*	Miss Berry's.
Tuttle, Charles Leo *e e*	*Exeter.*	Exeter.
Watson, Lucia Soule *g*	*Durham.*	Mr. D. W. Watson's.
Woodward, Arthur Jason *e*	*Lancaster.*	Delta Hall.

SOPHOMORES.

Adams, Waldo Lawrence *c*	*Townsend, Mass.*	Mrs. Sanders'.
Atwell, Robert King *c*	*Portsmouth.*	Pettee Block.
Barton, Arthur Hosea *e*	*Newport.*	Prof. Parson's.
Batchelder, Arthur Milliken *e*	*Suncook*	Kappa Sigma House.
Batchelder, Henry Edward *e*	*Exeter.*	Exeter.
Buss, Minot Giles *e*	*Wilton.*	Mr. Schoonmaker's.
Carlisle, Lawrence Andrew *a*	*Exeter.*	Exeter.
Cash, James Dennis *c*	*Massabesic.*	Zeta House.
Chesley, Mary Abbie *g*	*Lee.*	Lee.
Clough, Francis *e*	*Contoocook.*	Kappa Sigma House.
Cone, Charles Francis *e*	*Nashua.*	Zeta House.
Cory, Merton Maine *e*	*Nashua.*	Pettee Block.
Croghan, John Timothy *e*	*Concord.*	Kappa Sigma House.
DeMeritt, Katharine *g*	*Durham.*	Mr. Albert DeMeritt's.
Dickey, Harold Hurst *g*	*Manchester.*	Kappa Sigma House.
Evans, Walter Woods *c*	*East Kingston.*	East Kingston.
Farwell, Oren Lovell *a*	*Harrisville.*	Delta Hall.
Fellows, Ernest Roslyn *e*	*Exeter.*	Exeter.
French, Harry Fifield *c*	*Plymouth.*	Kappa Sigma House.
Goodsoe, Paul Wesley *e*	*Stratham.*	Delta Hall.
Hill, Stanley Fisk *e*	*Nashua.*	Delta Hall.
Huse, Merritt Chase *e*	*Concord.*	Pettee Block.
Kirkpatrick, William R. *e*	*Nashua.*	Delta Hall.
Neville, George Duncan *e*	*New Boston.*	Pettee Block.
O'Connor, John Joseph *e*	*Portsmouth.*	Zeta House.
Page, John Caleb *g*	*Dover.*	Pettee Block.
Perley, George Arthur *c*	*Goffstown.*	Prof. Pettee's.
Pettee, Sarah Elizabeth *g*	*Durham.*	Prof. Pettee's.
Sanborn, Moses Harmon *a*	*Fremont.*	Miss Berry's.
Smalley, Dean Fred *e*	*Walpole.*	Delta Hall.
Tarbell, Carl Brown *e*	*Milton.*	Pettee Block.
Wadleigh, Ray Emery *e*	*Kensington.*	Kappa Sigma House.
Waite, George Lyman *a*	*Dunbarton.*	Zeta House.
Walker, Harold Duncan *e*	*Kittery, Me.*	Zeta House.
Woodman, Francis Ward *c*	*Milford.*	Mr. Burnham's.

FRESHMEN.

Name.	Residence.	Room.
Ackerman, Laurence Day	*Bristol.*	Pettee Block.
Bassett, Roscoe Conkling	*Alton.*	Pettee Block.
Brown, Charles Harold	*Fremont.*	Mr. Wentworth's.
Brown, Edna Olive	*Rye Beach.*	Mr. Hancock's.
Burnham, Esther Young	*Durham.*	Mr. Burnham's.
Campbell, William Smith	*Litchfield.*	Pettee Block.
Cannon, William Raynor	*Hanover, Mass.*	Prof. Read's.
Chase, Carl	*Webster.*	Pettee Block.
Crosby, Percy Raymond	*Atkinson.*	Pettee Block.
Day, Harold Robbins	*Hudson.*	Mr. Hanscom's.
Doe, Marion	*Durham.*	Mrs. Doe's.
Ellsworth, Perry Foss	*Meredith.*	Mrs. Adams'.
Emery, Roland Chester	*Hampton.*	Pettee Block.
Falconer, John Ironside	*Milford.*	Mr. Burnham's.
Fisher, John Alden	*Hinsdale.*	Pettee Block.
Foye, Carl Frank	*Dover.*	Mrs. Meserve's.
Godfrey, Frank Hoyt	*Concord.*	Mr. Schoonmaker's.
Goodwin, Otis Dana	*Hollis.*	Greenhouse.
Hammond, Roland Bowman	*Nashua.*	Mr. Sawyer's.
Hardy, Harold Elwin	*Hollis.*	Miss Berry's.
Hayes, Lawrence Corson	*Milton.*	Pettee Block.
Hubbard, Leland Orson	*Chesterfield.*	Mr. Colby's.
Hurlburt, Wallace Blanchard	*Northfield.*	Pettee Block.
Igo, Benjamin Joseph	*New Boston.*	Pettee Block.
Jenness, Ellwood S.	*Gonic.*	Mr. Wentworth's.
Jenness, Herbert Leon	*Rye Beach.*	Mr. Hayes'.
Johnson, Howard Eastman	*Goffstown.*	Prof. Groves.'
Kelley, Charles William	*Barnstead.*	Mr. Burnham's.
Kennedy, Carl Duncan	*Concord.*	Pettee Block.
Kimball, Charles Fellows	*Meriden.*	Miss Berry's.
Kimball, Leland Hayward	*Salt Lake City, Utah.*	Prof. Groves.'
Langelier, Wilfred F.	*Nashua.*	Pettee Block.
Lougee, Bernard Ayers	*Pittsfield.*	Mr. Burnham's.
Matthews, Charles Doane	*Portsmouth.*	Zeta House.
Merrill, Maurice David	*Andover.*	Brook Cottage.
Morrell, Herbert Ephraim	*Alton Bay.*	Pettee Block.
Osgood, Philip Marcus	*Pittsfield.*	Mr. Burnham's.
Parker, John Edward	*Goffstown.*	Mrs. Sanders.'
Parker, William Brackett	*Portsmouth.*	Kappa Sigma House.
Peaslee, Albert	*Gonic.*	Mr. Wentworth's.
Pettengill, George Herbert	*Amherst.*	Prof. Shaw's.
Pike, Herbert S.	*Lisbon.*	Pettee Block.
Poupart, Ernest Leo	*Colebrook.*	Mr. Schoonmaker's.

Name.	Residence.	Room.
Pratt, Lester Albert	*Alton Bay.*	Pettee Block.
Prescott, Earle Henry	*Newport.*	Mr. Colby's.
Price, Amos Richardson	*Gilmanton Iron Works.*	Thompson Hall.
Prince, Fred Stanley	*West Salisbury.*	
Quimby, Harold Wallace	*Northwood Narrows.*	Mr. Hoyt's.
Read, Arthur Pearl	*Westport.*	Mr. Colby's.
Revene, Patrick James	*Wheelwright, Mass.*	Pettee Block.
Richardson, Charles Sidney	*Cornish Centre.*	Mrs. Wiggin's.
Richardson, Harry Edward	*Marlborough.*	Mr. Schoonmaker's.
Rolfe, Benjamin Henry	*Concord.*	Mr. Schoonmaker's.
Sanborn, Edson Dana	*Fremont.*	Miss Berry's.
Sanderson, Herbert Henry	*Lancaster.*	Mr. Sawyer's.
Sargent, George Jackman	*Concord.*	Mr. Schoonmaker's.
Sloan, Frank Ackerman	*Amherst.*	Mr. Stevens'.
Smalley, Lee Lawrence	*Walpole.*	Pettee Block.
Smith, Arnold Drake	*North Hampton.*	Mr. Hayes.'
Smith, Cecil Frank	*Mont Vernon.*	Dr. Grant's.
Snow, Robert Jefferson	*Walpole.*	Mr. Schoonmaker's.
Stevens, Ernest Morton	*Andover.*	Brook Cottage.
Stokes, Iva Dorothy	*Gossville.*	Mr. Hancock's.
Talbot, Carl Wheeler	*Milford.*	Prof. Shaw's.
Thompson, Harold Brown	*Gossville.*	Pettee Block.
Townsend, Harry Storrs	*Lebanon.*	Miss Berry's.
Trickey, John Paul	*Rochester.*	Mr. Burnham's.
Trow, Herbert Averill	*Mont Vernon.*	Pettee Block.
Tucker, Herbert R.	*Concord.*	Mr. Schoonmaker's.
Tucker, James William	*Concord.*	Pettee Block.
Watson, Sumner William	*Rochester.*	Mr. Burnham's.
Wendell, Chester Snell	*Dover.*	Mrs. Sanders'.
Wentworth, Stephen Neal	*Rochester.*	Mr. Wentworth's.
Wilder, Howard Erwin	*Amesbury, Mass.*	Pettee Block.
Wilkins, Carroll Blaisdell	*Nashua.*	Mr. Sawyer's.
Wilkins, Harold Hartshorn	*Amherst.*	Mr. Stevens.'
Wood, Chester Loring	*Webster, Mass.*	Pettee Block.
Woods, Arthur Page	*Bath.*	Pettee Block.

TWO YEARS' COURSE.

Second Year.

Anderson, Edwin Hazelton	*Chester.*	Pettee Block.
Clough, Alfred Walker	*Greenland.*	Mr. Burnham's.
Dimond, Oliver Carter	*West Concord.*	Mr. Wentworth's.
Forristall, Ralph Wayne	*Alstead.*	Mr. Sawyer's.
Hargreaves, Stanley	*Durham.*	Mr. Edgerly's.
Knowles, Charles Walker	*Gilmanton.*	Mr. Edgerly's.

Name.	Residence.	Room.
Lindquest, Eno Alexander	*North Charlestown.*	Mr. Bunker's.
Sawyer, Robert Stanley	*Walpole.*	Pettee Block.

FIRST YEAR.

Armstrong, Maurice Greeley	*Windham.*	Mr. Schoonmaker's.
Batchelder, Daniel Raymond	*Wilton.*	Mr. Stevens'.
Bean, Merle Harrison	*Berlin.*	Mr. Sawyer's.
Blood, Alfred Elwin	*East Sullivan.*	Mr. Sawyer's.
Brackett, Edwin Lamprey	*Greenland.*	Mrs. Adams'.
Burbank, Ray Clyde	*Webster.*	Pettee Block.
Cole, Forrest Burnap	*Lebanon.*	Miss Berry's.
Cummings, George Henry	*Colebrook.*	Mr. Sawyer's.
Cummings, Walter	*Colebrook.*	Mr. Sawyer's.
Dean, Abram Lawrence	*Taunton, Mass.*	Prof. Scott's.
Eaves, Ernest Victor	*Dublin.*	Mr. Stevens'.
Frink, Simes	*Newington.*	Mrs. Adams'.
Hall, Harold Robinson	*Fairhaven, Mass.*	Prof. Scott's.
Hickey, William Patrick	*Bow.*	Mr. Sawyer's.
Kampe, Frederick Henry Charles	*East Alstead.*	Mr. Sawyer's.
Lord, Carey Stevens	*Allston, Mass.*	Mr. Burnham's.
Parker, Lee Augustus	*Keene.*	Pettee Block.
Prentiss, John Willard, Jr.	*Walpole.*	Mr. Sawyer's.
Sanborn, Lewis Elwell	*Ashland.*	Mrs. Mathes'.
Shuttleworth, Edwin Lewis	*Methuen, Mass.*	Zeta House.
Tucker, Ernest Eugene	*Durham.*	Mrs. Sanders'.
Wright, Charles Shannon	*Portsmouth.*	Mrs. Adams'.

SPECIAL COURSE.

Blandford, Clara	*Washington, D. C.*	Prof. Sanderson's.
Belleville, William Edward	*Hinsdale.*	Zeta House.
Doe, Dorothy	*Rollinsford.*	Rollinsford.
Flint, Wesley Pillsbury	*Newburyport, Mass.*	Zeta House.
Priest, James Harry	*Manchester.*	Mrs. J. Thompson's.
Robinson, Lilla	*Marlborough.*	Miss Berry's.

TEN WEEKS' COURSE.

DAIRYING.

Chaplin, Walter Dudley	*Concord, Vt.*
Fullam, Charles Francis	*North Brookfield, Mass.*
Gray, George Arthur	*Beverly, Mass.*
Hannaford, Irving Carroll	*Northumberland.*
Jacobs, Richard Dearborn	*Wollaston, Mass.*
LaLande, George	*New York City.*

Name.	Residence.
Nixon, William George	*East Brentwood.*
Ray, Everett Augustus	*Rumney.*
Stevens, David Brown	*Ashland.*
Wheeler, Harry Frank	*Salem.*

HORTICULTURE.

Day, George Albert	*Nahant, Mass.*

SUMMARY.

Post-Graduates	2
Seniors	10
Juniors	23
Sophomores	35
Freshmen	78
Students in Two Years' Course	30
Students in Ten Weeks' Course	11
Special Students	6
Total	195

REGISTER OF GRADUATES.

BACHELORS OF SCIENCE.

NOTE.—The arrangement is: (*a*) Name in full. (*b*) Later degrees taken. (*c*) Residence at time of entering college. (*d*) Occupation, etc. (*e*) Present residence. *Dead. †Present address unknown. It is earnestly requested that each graduate inform the Secretary of the Faculty of any changes that should be made in this list.

1871.

William Preston Ballard, Concord. Farmer.
R. F. D., Route 1, Concord.

Lewis Perkins, Hampton. Contractor.
301 Lake Avenue, Newton Highlands, Mass.

Charles Henry Sanders, Penacook. Merchant. *Penacook.*

3—

1872.

Edwin Bartlett, Bath. Ranchman and Stock Raiser.
Spearville, Ford Co., Kansas.

Frank Alexander White, Bow. Surveyor, Farmer.
Route 4, Concord.

2—

1873.

†Frederick Erasmus Eldredge, Kensington.

James Fred Smith, A. B., A. M. (Dartmouth, 1885; A. M., Stanford, 1900). Principal of High School. *Campbell, Cal.*

Charles Henry Tucker, Plaistow. Carriage Woodworker.
24 Highland Street, Amesbury, Mass.

3—

1874.

Millard Fillmore Hardy, Rev., Nelson. Graduated Theo. Inst., Ct., 1878. Clergyman. *East Jaffrey, N. H.*

*Henry Abbott Sawyer, North Weare.

2—*1

1875.

Walton Herman Aldrich, M. D. (Univ. N. Y. City, 1880), Troy. Physician and Surgeon. *Marlborough.*

†Frank Pierce Curtis. Grocer. *Fitchburg, Mass.*

Frank Veranus Emerson, Lebanon. Manager Emerson Edge Tool Company Works. *Water St., East Lebanon.*

Charles Webster Hardy, M. D. (Mo. Med. Coll., 1881), Marlborough. Physician.
206 So. Main Street, Ottawa, Kansas.

Harvey Jewell, Winchester. Fruit Grower and Market Gardener.
Cromwell, Conn.

*Charles Ormille Leavitt, Lebanon.

*John Loney McGregor, D. D. S. (Phila. Dental Coll., 1877), M. D. (Dartmouth, 1883), Whitefield.

Eliel Peck, Lebanon, Merchant. *Kimball, Stearns County, Minn*

Ira William Ramsey, Walpole. *Walpole.*

Orlando Leslie Seward, Keene. Artist.
287 Church Street, Keene.

Emery Mason Willard, Harrisville. Druggist, 15 Union Street, Boston, Mass. *109 Hewlett Street, Roslindale, Mass*
11—*2

1876.

Herbert Cyril Aldrich, Troy. Insurance and Real Estate.
329 West 4th St., Los Angeles, California.

†Edmund Lawson Brigham, Jaffrey. Mechanic.

Joseph Warren Butterfield, Westmoreland. Farmer.
North Montpelier, Vt.

Arthur French Chamberlain, Westmoreland. Partner of Edson Keith & Co., 132 Michigan Avenue, Chicago, Ill.
6542 Kimbark Avenue, Chicago, Ill.

Anson Ballard Cross, Holyoke, Mass. Contractor and Builder.
Wilmington, Vt.

Warren Webster Kimball, Troy. Merchant. *Troy.*

Daniel Deeth Parker, Fitzwilliam. With Heywood Bros. & Wakefield Co.
Box 56, Gardner, Mass.
7—

1877.

Rollin Kirk Adair, Indian Territory. Retail Groceries.
Chelsea, Indian Ter.

*Homer Brooks, M. D. (N. Y. Hom. Med. Coll., 1881), Franconia.

John Washington Carson, Mont Vernon. Farmer and Land Surveyor. *Francestown.*

*Charles Otto Chubert, Troy.

*Charles Albert Edwards, LL. B. (Univ. of Iowa, 1880), Keene.

*William Francis Flint, Richmond. Land Surveyor, Horticulturist, Forestry Expert. *Winchester.*

Clinton Camillus Hall, Westmoreland. Farmer.
East Westmoreland.

John Goodrich Henry, M. D. (Dartmouth, 1880), Chesterfield. Physician. *15 Pleasant St., Winchendon, Mass.*

*Charles Pitkin Hollister, North Montpelier, Vt.

George Mirick Holman, M. D., Fitchburg, Mass., Teacher.
334 Boylston St., Boston, Mass.

Charles Appleton Hubbard, Troy. Treasurer United Fruit Company.
Board of Trade Building, 131 State Street, Boston, Mass.

Carlos Augustus Wheeler, East Calais, Vt. Bee Keeper and Farmer. *Bracken, Comal Co., Texas.*

Everard Whittemore, Fitzwilliam. Insurance and Real Estate.
14 River Street, Hudson, Mass.
13—*5

1878.

†Ezra Eastman Adams, Manchester.

*Elmer Kilburn, Marlow.

Charles Edward Record, Fitchburg, Mass. Contractor and Builder. (Greenhouses a specialty.)
73 Green Street, Leominster, Mass.
3—*1

1879.

Charles Hardy Bailey, M. D. (Dartmouth, 1881). Physician.
39 East Broadway, Gardner, Mass., Station A.

Richard Clinton Chapin, Chicopee, Mass. With American Writing Paper Company. *Holyoke, Mass.*

Lucius M. Cragin, Lempster. Farmer.
The Elms, Springfield, Vt.

*Nathaniel Cutler Holmes, Jaffrey.

Fred Charles Parker, Lempster. Commercial Traveler.
5 Liberty Street, Concord.

George Henry Wilkins, M. D. (N. Y. Hom. Med. Coll., 1883), Amherst. Physician.
324 Walnut Street, Newton (Newtonville P. O.), Mass.
6—*1

1880.

Charles Harvey Hood, Derry. Milk Business.
2 Benton Road, Somerville, Mass.
1—

1881.

Edwin Thompson Aldrich, Troy. General Insurance Agent.
Bridgman's Block, Keene.

Henry Lyman Barnard, Troy. Clerk. *Troy.*

*George Jordan Boardman, Lawrence, Mass.

Edwin Franklin Bristol, Harwinton, Conn. Miller and Farmer. *Ascutneyville, Vt.*

Artemas Terald Burleigh. Farmer. *Franklin.*

Frank Dana Ely, Cavendish, Vt. With Vermont Marble Company, Electrician. *Proctor, Vt.*

Sanford Eugene Emery, LL. B. (Albany Law School, 1886), Proctorsville, Vt. Attorney-at-Law. *Proctorsville, Vt.*

Charles Herbert Hazen, Hartford, Vt. Farmer and Market Gardener. *Bethlehem.*

Frank P. Marston, Hartford, Vt. Investments. *340 Main Street, Worcester, Mass.*

William Augustus Megrath, M. D. (Dartmouth, 1886), Cavendish, Vt. Physician. *Loudon.*

Fred Townsend Stanton, Strafford. Farmer. *Strafford Corner.*

Victor Hugo Stickney, M. D. (Dartmouth, 1883), Tyson, Vt. Physician and Surgeon. *Cor. Bains and Sims Streets, Dickinson, N. Dakota.*

Samuel Austin Wallace, Ph. G. (Boston School of Pharmacy, 1886), West Hartford, Vt. Druggist and Stationer. *Crookston, Minn.*

George Herbert Whitcher, Strafford. Director of the New Hampshire Agricultural Experiment Station, February 22, 1888, to November 1, 1894; Professor of Agriculture of the New Hampshire College, June, 1887, to November 1, 1894. District Superintendent of Schools, August 1, 1900. *Berlin.*

14—*1

1882.

Harvey Lincoln Boutwell, LL. B. (Boston University, 1886), Hopkinton. Attorney-at-Law, 209 Washington Street, Boston, Mass. *37 Pierce Street, Malden, Mass.*

Dana Justin Bugbee, North Pomfret, Vt. Mining in Colorado. *North Pomfret, Vt.*

Robert Fletcher Burleigh, M. D. (Dartmouth, 1887), Franklin. Physician. *South Braintree, Mass.*

La Forrest John Carpenter, Surry. Farmer. *R. F. D. No. 1, Shirley, Mass.*

Edwin Preston Dewey, Hanover. Civil Engineer. *City Hall, Long Beach, Cal.*

George Andrew Loveland, LL. B. (University of New York, 1886), Norwich, Vt. Section Director United States Weather Bureau. *1130 So. 20th St., Lincoln, Neb.*

†John Wright Mason, Hanover.

Harlan Addison Nichols, Derry. Physician.
San Elizario, Texas.

*Frank Elmer Thompson, Stark.

9—*1

1883.

†Elmore Ferdinand Arnold, M. D. (University City of New York, 1885.) Londonderry, Vt. Physician. *New York, N. Y.*

Frank Landor Bigelow, Proctorsville, Vt. Instructor in Mathematics and Sciences, Goddard Seminary, Barre, Vt., 1883–1886. Business. *Rutland, Vt.*

Frederick Stocks Birtwhistle, Troy. Manager Raleigh Construction Co., 14 West Hargett St., Raleigh, North Carolina. *Troy.*

Noice D. Bristol, Harwinton, Conn. Scenic Photographer.
Logan, Ohio.

Frederick Plummer Comings, Lee. Trustee New Hampshire College 1893–1903. *Lee.*

Frank Harry Follansbee, Canaan. Railway Postal Clerk.
41 Sharon Street, West Medford, Mass.

Adams Clark French, M. D., D. O., Franklin Falls. Physician.
231 So. Hayne Street, Chicago, Ill.

James Edgar Gay, Tunbridge, Vt. Woolen Manufacturer.
Cavendish, Vt.

Elmer Daniel Kelley, Franklin Falls. Farmer and Business
445 Central Street, Franklin Falls.

Alvah Benjamin Morgan, Canaan. Registered Druggist.
Woodstock, Vt.

William Lincoln Whittier, Deerfield. Foreman of Machine Shop.
121 Rantoul Street, Beverly, Mass.

Charles Minot Woodward, Hanover. Teacher, Public Schools.
1620 College Avenue, Fort Worth, Texas.

12—

1884.

*Ernest Smith Cummings, Lee.

Fred Carlos Davis, South Reading, Vt. Lawyer and Farmer.
McKinley Block, Springfield, Vt.

Sylvester Miller Foster, Riverhead, N. Y. Cashier Riverhead Bank, and Coal Dealer. *Riverhead, Suffolk County, N. Y.*

Herbert Harvey Kimball, M. S. (Columbian University, 1900), Hopkinton. Librarian and Climatologist, U. S. Weather Bureau. *Washington, D. C.*

Moses Bisbee Mann, Benton. Inspector of Customs.
Custom House, Boston, Mass.

George Milton Moore, Plymouth, Vt. In private business.
Ludlow, Vt.

Ziba Amherst Norris, Lyme. Dealer in Groceries and Provisions, Wholesale and Retail, Dorchester and Cohasset.
587--593 Washington Street, Dorchester.

Edwin Chapin Thompson, Lee. Section Director U. S. Weather Bureau. *5 Allen Street, San Juan, P. R.*

8—*1

1885.

George Ellsworth Adams, Weston, Vt. Merchant.
Vernal, Utah.

Ruel Seabury Alden, Lyme. Superintendent of College Farm, 1895--'97. Farm Superintendent.
Box 173 North Uxbridge, Mass.

Walter Eugene Angier, C. E. (Dartmouth, 1887), West Swanzey. Resident Engineer, Thebes Bridge, Ill.
Office 50 78th Street, Chicago, Ill.

Edward Alonzo Bailey, West Swanzey. Chair Maker.
55 Pine Street, Keene.

†Phillips Greenleaf Bickford, Lyme.

Andrew Walter Brill, Riverhead, L. I. Clerk North British and Mercantile Fire Insurance Company, 76 William Street, New York City. *Hempstead, N. Y.*

†Paul Cuff Brooks, Boston, Mass.

†Frank Jay Emerson, Epping.

Allen Hazen, Wilder, Vt. Consulting Engineer.
St. Paul's Building, 220 Broadway, N. Y.

George Mayo Mullins, Londonderry. Attorney-at-Law.
Fourth and Jefferson Streets, Papillon, Neb.

Albert Henry Wood, Lebanon. Associate Professor of Agriculture, 1890--'94. Grain Merchant. *Framingham, Mass.*

11—

1886.

Frank Albert Davis, M. B., M. D. (Boston University School of Medicine, 1897, 1898), South Lee. Physician.
Hotel Buckminster, Commonwealth Ave. and Beacon Sts., Boston, Mass.

James Ellsworth Harvey, Surry. Photographer.
Clinton, Mass.

Belezar Stoianoff Ruevsky, Tirnovo, Bulgarie. Instructor in Modern Languages in the State College, "St. Cyrille," Maître au Gymnase, "St. Cyrille," de Gouvernement, Tirnovo, Bulgarie. *Sofia, Bulgaria.*

Madison Templeton Thurber, M. D. (Dartmouth, 1890), Webster. Physician. *85 Savin Hill Avenue, Boston, Mass.*

Edward Hills Wason, New Boston. Lawyer. Solicitor for Hillsborough County. *146 Main Street, Nashua.*

George Pillsbury Wood, Lebanon. Draftsman in charge, Bureau of Yards and Docks, Navy Department.
3407 Holmead Avenue, N. W., Washington, D. C.

6—

1887.

William Sprague Currier, Norwich, Vt. Local Forecaster.
U. S. Weather Bureau Office, Toledo, Ohio.

Arthur Woodbury Hardy, C. E. (Dartmouth, 1889), Hopkinton. Manager Western Sprinkler Risk Association.
240 La Salle Street, Chicago, Ill.

George Albert Sanborn, Rochester. Salesman.
34 Pine Street, Rochester.

Hiram Newton Savage, C. E. (Dartmouth), White River Junction, Vt. Member Am. Soc. C. E.; Supervising and Consulting Engineer, U. S. Geological Survey.
Washington, D. C., or Billings, Montana.

Bion Leland Waldron, Strafford. Official in charge U. S. Weather Bureau. *U. S. Weather Bureau, Hannibal, Missouri.*

5—

1888.

*Melvin Burnside Carr, North Haverhill. Civil Engineer, B. E. Ry. Co. *28 North Street, Medford, Mass.*

Herbert Grant Davis, South Lee. General Manager Sea View Railroad Company and Narragansett Pier Electric Light & Power Company. *Narragansett Pier, R. I.*

Edwin Chandler Gerrish, Webster. Assistant Paymaster for Proprietors of the Locks and Canals on Merrimack River.
66 Broadway, Lowell, Mass.

†William Nelson Hazen, C. E. (Dartmouth, 1890). Chief Draftsman for the Structural Iron and Steel Co., Bush Street and B. & O. R. R. *Pittsburg, Penn.*

Edward David O'Gara, Hanover. Farmer. *Hanover.*

George Elmer Porter, M. D. (Dartmouth, 1892), Hartford, Vt. Physician. *Marengo, Wayne Co., N. Y.*

George Jonathan Sargent, Canterbury. Civil Engineer.
Canterbury.

John Warren Smith, M. S. (1900), Grafton. Section Director U. S. Weather Bureau.
16 East Broad Street, Columbus, Ohio.

George Elwin Walker, Littleton. Farmer. *Littleton.*

8—*1

1889.

Fred Harvey Colby, Hopkinton. Fruit Grower.
Prosser, Wash.

†Linwood Carroll Gillis.

*Louis Jerome Hutchinson, Norwich, Vt.

John Lawrence Norris, Lyme. Norris Brothers, Groceries and Provisions, 1673--1679 Washington Street, Boston; 529--535 Dudley Street, Roxbury; and 587--593 Washington Street, Dorchester, Mass. President of the Dairy Association Company, Lyndonville, Vt.; Secretary and Treasurer of Photo Fabric Company of America.
6 Worcester Square, Boston, Mass.

Charles Walter Earl Scott, Winchester. Mechanic.
Darrington, Wash.

David Elmer Stone, Hartford, Vt. Grain Merchant.
Framingham Center, Mass.

Fred Washburne, West Springfield. With Sargent & Co., Foreman of Foundry Department.
56 Carmel Street, New Haven, Conn.

7—*1

1890.

John Young Jewett, C. E. (Dartmouth, 1895), Gilford. Cement Expert, Reclamation Service, U. S. Geological Survey.
Chamber of Commerce Bldg., Denver, Colo.

†Joseph Franklin Preston, Hanover. Clerk.
Boston, Mass.

Elihu Quinby Sanborn, Webster. Machinist. *Contoocook.*

Clarence Ira Slack, Norwich, Vt. Cashier.
51 North Market Street, Boston, Mass.

4—

1891.

Ernest Gowell Cole, Hampton. Postmaster and Merchant.
Hampton.

Russell Marden Everett, Chester. Patent Lawyer and Solicitor.
788 Broad Street, Newark, N. J.

Edward Payson Stone, Canaan Center. Farmer.
Orford.

3—

1892.

Percey Lovejoy Barker, C. E. (Dartmouth, 1894), Milford. Supervisor of Bridges and Buildings, New York City.
Jersey Shore, Penn.

Fred Driggs Fuller, Hanover. Chemist, Pennsylvania Department of Agriculture. *216 Market Street, Harrisburg, Pa.*

Arthur Benezette Hough, Lebanon. Dairy Farmer. *Lebanon.*

†Edward Monroe Stone, C. E. (Dartmouth, 1894), Marlborough. Civil Engineer with Henry A. Wolcott.

4—

1893.

Wilton Everett Britton, Ph. D. (Yale, 1903), Keene. State Entomologist and Entomologist of the Connecticut Agricultural Experiment Station and Lecturer Yale University.
296 McKinley Ave., New Haven, Conn.

Frank John Bryant, Enfield. Postoffice Clerk. *Lebanon.*

Charles Elbert Hewitt, M. M. E. (Cornell, 1895), Hanover. Electrical Engineer and Contractor.
13–21 Park Row Building, New York City.

Charles Lincoln Hubbard, M. E. (1895), Fitzwilliam. Consulting Engineer. *551 Boylston St., Boston, Mass.*

Orrin Moses James, Northwood. Civil Engineer and Surveyor.
Northwood Narrows.

Arthur Whitmore Smith, M. Sc., Ph. D., Norwich, Vt. Assistant Professor of Physics, University of Michigan.
Ann Arbor, Mich.

6—

1894.

Bert Sargent Brown, Hanover. Farmer. *Hanover.*

Fred Willis Gunn, Keene. Machinist. *83 Kellher Street, Keene.*

Frederic William Howe, Hollis. Professor of Chemistry and Dietetics, State Normal School, Framingham, Mass., and Scientific Adviser for the Walker Gordon Laboratory Co.
793 Boylston Street, Boston, Mass.

3—

1895.

Frank Stanley Adams, Gilsum. With Vermont Farm Machine Company. *56 Pine Street, Bellows Falls, Vt.*

Frank Clifton Britton, Keene. With the Sullivan Machinery Company of Claremont and Chicago (Costkeeping Department). *7 Prospect Street, Claremont.*

†Henry Elmer Hill, Plainfield, Vt. With the Arizona Lumber Company.

Charles Arthur Trow, Mont Vernon. Chief Engineer in construction of Uba Railroad. *602 Rialto Bldg., San Francisco, Cal.*

4—

1896.

Lewis Harris Kittredge, Keene. The Peerless Motor Car Company. *Lisbon Street, Cleveland, Ohio.*

1—

1897.

Harlan Winifred Barney, Grafton. Business.
112 Myrtle Street, Manchester.

Carrie Augustus Bartlett, Lee. Teacher. *Route 1, Newmarket.*

Mary Blaisdell Bartlett, Epping. Teacher in Biology, Concord High School. *99 North State Street, Concord, N. H.*

Walter French Buck, Manchester. Teacher, Milton Academy, Milton, Mass.

Arthur Willard Colburn, Dracut, Mass. Farmer. *Dracut, Mass.*

Carrie Lydia Comings, Durham. Teacher, Beverly High School.
78 Essex Street, Beverly, Mass.

Irving Lyford Dennett. Chief Engineer, New York Glucose Company. *Edgewater, N. Y.*

*Mary Elizabeth Comings (Mrs. I. L. Dennett), Durham.

Elwin Henry Forristall, M. Sc. (1900, Columbia), Supt. Mass. Agricultural Coll. Farm. *Amherst, Mass.*

Leslie David Hayes, Durham. Instructor of Manual Training and Chemistry, Rayen School.
215 Arlington St., Youngstown, Ohio.

John Norton Hunt, Peterborough. *Peterborough.*

Ellery Dunbar Jenkins, Lee. Chemist, Lowell Fertilizer Company. *P. O. Box 105, Lowell, Mass.*

Woodruff Mason, Stamford, Conn. *Balenville, N. Y.*

Roscoe Hart Shaw, Milton. Chemist.
810 Humboldt Street, Manhattan, Kansas.

Charles William Vickery, Dover. With Claflin Brothers, Mining Engineers. *Nome City, Alaska.*

Delbert Amos Wheeler, South Ashburnham, Mass. Teacher.
Boston, Mass.

Everett Sidney Whittemore, Colebrook. Superintendent Stonehurst Farm. *Stonehurst Farm, Intervale.*

17—*1

1898.

*Richard Cole Butterfield, Westmoreland.

Helen Buzzell, Lee. Teacher, Lee, N. H.
R. F. D. 5, Dover.

Bernice Elisabeth Caverno (Mrs. E. H. Hancock), Durham.
Durham.

Burton Albert Corbett, Colebrook. Farmer. *Colebrook.*

Alfred Caverly Durgin, Lee. Farmer and Fruit Grower. *Lee.*

James Alfred Foord, Walpole. Professor of Agriculture, Delaware College. *Newark, Delaware.*

John William Fullerton, Somersworth. Paymaster with Great Falls Woolen Company. *Somersworth.*

Arthur Given, Durham. Assistant Chemist, U. S. Department of Agriculture, Bureau of Chemistry.
1937 13th Street, N. W., Washington, D. C.

Edward Henry Hancock, Belmont. Instructor in Mechanism and Woodwork, New Hampshire College. *Durham.*

Mabel Lucy Hayes, Durham. In charge of Commercial Dept. in High School. *Box 696, Windsor Locks, Conn.*

Tomokichi Hirokawa, B. S. (Massachusetts Institute of Technology), Iamabari, Japan. Electrical Engineer Kyoto Electric Light Company. *Kyoto, Japan.*

Harry Clinton Mathes, Newmarket. Mail Clerk.
25 Belknap Street, Dover.

Herbert Fisher Moore, M. E. (Cornell, 1899), M. M. E. (Cornell, 1903), Penacook. Assistant Professor of Mechanics, University of Wisconsin. Member American Society for Testing Materials. *919 University Avenue, Madison, Wis.*

Gerry Austin Morgan, Goffstown. Draftsman with Taft-Pierce Manufacturing Company.
93 Blackstone Street, Woonsocket, R. I.

Harry Putnam Richardson, Milford. With Gulf Bag Co., San Francisco, Cal.

Fred Dexter Sanborn, Ashland. Paper Box Manufacturer. Publisher of Weekly Newspaper and Mgr. Job Printing Plant.
Ashland.

Fred Webster Smith, Franklin Falls. Foreman, Full Fashion Department, Sulloway Hosiery Mill.
121 Glenwood Avenue, Franklin Falls.

Benjamin D. Tolles, Somersworth. With Great Falls Manufacturing Company, Department of Carding.
52 Grove Street, Somersworth.

18—*1

1899.

Henry Clark Baker, South Yarmouth, Mass. Atlanta Manager, Crocker-Wheeler Company.
425 Empire Building, Atlanta, Ga.

Harry Everett Barnard, Nashua. State Chemist, Laboratory of Hygiene, State House, Indianapolis, Ind.

Harrison Edward Clement, Nashua. Member American Institute Mining Engineers, Mining Engineer. Member of Firm Clement & Strange, Engineers and Contractors.
307 Dooley Block, Salt Lake City, Utah.

Irving Atwell Colby, Exeter. With Brown Hoisting Machinery Co. *6018 Superior Ave., Cleveland, O.*

Willis Daniel Farley Hayden, Hollis. Superintendent Middlebrook Farm. *Dover.*

Frederic Libbey Horton, Dover. Engineering Department General Electric Company.
35 Lovers' Leap Avenue, Lynn, Mass.

William Elmer Hunt, Nashua. First Lieutenant Eighth United States Infantry. Professor of Military Science and Tactics, New Hampshire College. *Durham.*

Louis Hobart Kenney, Pownal, Me. Inspecting Draftsman U. S. N., Office of Inspector of Machinery for U. S. Navy, The William Cramp & Sons' Ship and Engine Building Works.
Philadelphia, Pa.

Grace Agnes Mark (Mrs. Herbert F. Moore), Gilsum.
919 University Avenue, Madison, Wis.

Arthur Zebulon Norcross, Rindge. Farmer. *Pomfret, Conn.*

Harry Nelson Putney, Franklin. Machinist B. & M. R. R. Shops.
Concord.

Etta Lillian Simpson, Durham. Principal Grammar School.
Acushnet, Mass.

12—

1900.

Herbert Prescott Andrews, Hollis Engineer, Century Electric Co. *1007–9–11 Locust St., St. Louis, Mo.*

David Burns Bartlett, Manchester. Law Student, Boston University Law School.
Rich Hall, Ashburton Place, Boston, Mass.

Frances Burnham, Durham. Teacher Lincoln School.
75 Pleasant St., Wakefield, Mass.

Blanche Mary Foye, Durham. Teacher in Concord High School.
Concord, Mass.

Charles Elliott Page Mathes. With Birmingham Railway Light & Power Company. *1717 Fifth Ave., Birmingham, Ala.*

Edward Emil Nelson, Nashua. Member of American Institute of Mining Engineers. Engineering and Contracting.
307 Dooley Block, Salt Lake City, Utah.

Alvena Pettee, Durham. Bachelor's Diploma in Domestic Science, Teachers' College, Columbia University, 1903.
Durham, N. H.

Marie Livingstone Robertson (Mrs. Benjamin M. Duggar), Buffalo, N. Y. *809 Virginia Avenue, Columbia, Mo.*

Walter Noah Shipley, Nashua. Steam Turbine Department, General Electric Company. *138 Lakeview Avenue, Lynn, Mass.*

Charles Edwin Stillings, Somersworth. With Interborough Rapid Transit Co., New York City.
Sub-Station No. 12, 108 E. 19th St., New York City.

John Ernest Wilson, Hollis. With C. O. D. Electric Works, 638 San Julian Street, Los Angeles, Cal.
Los Angeles, Cal.

Robert Morrill Wright, Hill. Dealer in Flour, Feed, Grain and Hay. *Hill.*

12—

1901.

Henry Harold Calderwood, Nashua. Turbine Assembly Department with General Electric Co.
428 Central Street, Saugus, Mass.

Charles Henry Courser, Warner. Chief Engineer, Wheelwright Paper Company, Wheelwright, Mass.

Alice Emerson Dorr, Dover. *35 Summer Street, Dover.*

Harry Willis Evans, Portsmouth. Engineering Department, General Electric Company.
671 Western Avenue, Lynn, Mass.

Harry Gilbert Farwell, Keene. Engineering Department, General Electric Company. *403 Summer St., Lynn, Mass.*

Ella Gertrude Gowen, Dover. Giving Lessons in Cookery.
15 Lexington Street, Dover.

Charles Almon Hunt, Nashua. Second Lieutenant and Battalion Q. M. and Commissary, Twelfth United States Infantry.
Camp Jossmann, Guimaras, P. I.

Edwin Price Jewett, Lakeport. In charge Prescription Department Walker Gordon Laboratory Co.
2112 Michigan Avenue, Chicago, Ill.

Robert McArdle Keown, Pomona, Fla. Instructor in Machine Design, University of Wisconsin.
University of Wisconsin, Madison, Wis.

Elmer Eugene Lyon, Wentworth. Teacher History and Civil Government, Dixon Academy. *Covington, La.*

George J. Penneo, Hampstead. Farmer. *Hampstead.*

Harold Morrison Runlett, Durham. Wholesale Shoe Business. With Clark Hutchinson Co., 121 Duane Street, New York City.

Edson Albert Straw. Foreman of Box Factory. *Ashland.*

13—

1902.

Mary Doe, Rollinsford. *Rural Route No. 2, Dover.*

Edwin W. Gilmartin, Nashua. Engineering Department, General Electric Company. *132 So. Common St., Lynn, Mass.*

John C. Kendall, Peterborough. Assistant Professor of Dairy Husbandry, North Carolina College of Agriculture and Mechanic Arts. *West Raleigh, N. C.*

Harry M. Lee, Moultonborough. Foreman. *Windsor, Vt.*

Abiel A. Livermore, Wilton. Rose Grower with J. A. Budlong & Son Co. *153 Greenwood St., Auburn, R. I.*

George E. Merrill, B. Ag. (Cornell University, 1903), Newburyport, Mass. Teacher, Farm School, Bucks Co., Pa. *Hampton Falls.*

Charles A. Payne, Portsmouth. Engineering Department, General Electric Company. *50 Mall Street, West Lynn, Mass.*

Eugene P. Runlett, Durham. With Williams & Clark, Shoe Manufacturers, Lynn, Mass.

Arthur L. Sullivan, Suncook. Assistant Chemist, Bureau Internal Revenue. *Treasury Department, Washington, D. C.*

9—

1903.

Harry David Batchelor, West Upton, Mass. Chief Chemist, Sharon Coke Works, South Sharon, Pa.

Edgar Forest Bickford, Rochester. Assistant Electrician, Pittsburg Railway Company. *281 Shady Ave., Pittsburg, Pa.*

Frank Ray Brown, Durham. Instructor, Forge Shop, New Hampshire College, Durham.

Everett William Burbeck, Haverhill. Mining Engineer. Spruce Office, Adams & Spruce Mines. *P. O. Box 370, or Spruce Office, Eveleth, Minn.*

†Everett Garfield Davis, Newmarket.

Albert Noah Otis, Durham. Testing Department, General Electric Company, Schenectady, N. Y. *31 Eagle Street, Schenectady, N. Y.*

Ralph Harvey Rollins, East Concord. Engineer, Irrigation Construction. *Hazen, Nev.*

Morris Archer Stewart, Dover. Research Assistant, Massachusetts Institute of Technology, Boston, Mass. *9 Allston Street, Somerville, Mass.*

David Albert Watson, Durham. Gardener. *Durham.*

Melvin Johnson White, Farmington. Reporter. *326 Amherst Street, Manchester.*

10—

1904.

Leander Ashton Pittsfield. Assistant, Woodland Conservatories, Aspen Ave., Auburndale, Mass.

Walter Allen Barker, Pittsfield. Civil Engineering Department, B. & A. R. R., Room 372, South Station, Boston, Mass.

Edgar Charles Bickford, Durham. B. E. Ry. E. E. Office. *552 Harrison Ave., Boston, Mass.*

Percy Anderson Campbell, Litchfield. Post-Graduate Iowa State College, Station A, Ames, Ia.

Carrol Winfred Farr, North Weare. Dairy Farmer.
North Weare.

Joseph Ezra Goodrich, New Durham. Instructor of Mathematics and Science, Norwood High School.
39 Cottage St., Norwood, Mass.

†George Herbert Hill, La Crosse, Wis.

Thomas Jefferson Laton, Nashua. Testing Department, General Electric Company. *132 So. Common St., Lynn, Mass.*

Raymond Louis Lunt, Dover. Surveyor.
Box 14, Dover.

Arthur Ronello Merrill, North Bridgton, Me. Instructor in Animal Husbandry and Dairying, Baron de Hirsch Agricultural and Industrial School, Woodbine, New Jersey.

Samuel Ambrose Richardson, Charlestown. Engineer with Am. Tel. & Tel. Co., 22 Thames St., New York.

1905.

John Henry Chesley, Rockingham. Testing Department, General Electric Company. *77 Mall Street, West Lynn, Mass.*

Cleon Orestes Dodge, Sunapee. Chemist, Sharon Coke Company, South Sharon, Pa.

Silas Bryden Hayden, South Natick, Mass. Illinois Steel Company. *506 La Salle Avenue, Chicago, Ill.*

Harry Linwood Hayes, Exeter. Boston Office, General Electric Company.

Warren Chauncey Hayes, Durham. *Durham.*

Fred Harvey Heath, Warner. Student in Graduate School of Yale University.
P. O. Box 648, Yale Station, or 648 E. Divinity Hall, New Haven. Conn.

Harold Nims Knight, Marlborough. Farm Foreman.
Marlborough.

Joseph Wesley Moreton, Medford, Mass. Engineering Department, Westinghouse Electric & Manufacturing Company.
P. O. Box 360 East Pittsburg, Pa.

Orlo Dudley Mudgett, Gilmanton. Testing Department, Westinghouse Electric & Manufacturing Company.
P. O. Box 360 East Pittsburg, Pa.

Horace James Pettee, Durham. Illinois Steel Co.
506 La Salle Ave., Chicago, Ill.

Arthur Mahlon Pike, Dover. General Electric Co., Lynn, Mass.
77 Mall St., West Lynn, Mass.

Fred Silver Putney, Hopkinton. Herdsman, Mt. Putney Farm. *R. F. D., No. 2, Contoocook.*

John Leslie Randall, Lee. Graduate Student in Biology at New Hampshire College. Student Assistant in Biology. *Durham.*

William Orrin Robinson, Marlborough. Graduate Student in Chemistry at New Hampshire College. Student Assistant in Chemistry. *Durham.*

Harry Union Russell, West Derry. Scholar in European History, University of Wisconsin. *127 University Library Building, Madison, Wis.*

Elmer Seth Savage, Lancaster. Instructor in Dairying, Baron de Hirsch School, Woodbine, N. J.

Castine Caroline Swanson, Cambridge, Mass. Assistant Principal, Sandwich High School. *17 Upland Road, Cambridge, Mass.*

Frank Alvin Tinkham, Grafton. Superintendent, New Hampshire College Farm. *Durham.*

TWO YEARS' COURSE IN AGRICULTURE.

†Lyman Charles Stratton, Hollis. (1897.) Superintendent Dairy Farm.

Charles Wesley Martin, Durham. (1898.) With Sacramento Gas, Electric & Railway Company. *3206 Madrone Ave., Oak Park, Sacramento, Cal.*

George Henry Wheeler, Temple. (1898.) Farmer. *Temple.*

Fred Joseph Durell, Newmarket. (1900.) Farmer. *Newmarket.*

Harry Alvin Elliott, Lyme. (1900.) Blacksmith. *Lyme.*

Edward Augustus Hills, Hollis. (1900.) Farmer. *Hollis.*

Albert Cate Knowles, Epsom. (1900.) Farmer and Seed Agent. With Dunlap & Sons, Nashua, N. H. *Epsom.*

†Robert Hale Pearson, Webster. (1900.)

Charles Nicklin Blodgett, Hebron. (1901.) Manager Breezy Point Farm, Breezy Point. *Warren.*

Harry Douglass Verder, Hollis. (1901.) Stock Raiser. *Hollis.*

†Rufus Leonard Cushman, North Adams, Mass. (1901.)

†George R. Brew, Lowell, Mass. (1902.)

Carroll W. Farr, North Weare. (1902.) B. S. New Hampshire College, 1904.

George F. Hills, Hollis. Florist, New Hampshire College.

†Walter E. Quimby, Deerfield. (1902.)

Walter P. Tenney, Chester. (1902.) Homedale Farm. *Chester.*
†Thornton N. Weeks, Greenfield. (1902.)
Robert E. Whittier, Deerfield. (1902.) Supt. Maplewood Farm, Danvers, Mass.
Edward C. Wilson, Wilton. (1902.) Live Stock Commission, Union Stock Yards, care of Wood Bros.
6022 Princeton Avenue, Chicago, Ill.
†Harry Garfield Brierley. (1903.) Dover.
†George Grover Manning. (1903.) Boston, Mass.
†James Henry Nixon. (1903.) East Brentwood.
†Roscoe Franklin Swain. (1903.) South Hampton.
Erland Graves Batchelder. (1904.) Wilton. Dairying and Gardener, Kimball Heights Farm.
R. F. D., No. 3, Wilton, N. H.
‡Wesley Pillsbury Flint. (1904.) Newburyport, Mass.
Henry Marston Shurbert. (1904.) Northwood Ridge. Gardener C. G. Rice Estate, Turner Hill, Ipswich, Mass.

SUMMARY.

Graduates, Bachelors of Science, 1871–1905	277
Graduates, Two Years' Course	28
Agriculturists	57
Architects	1
Business Pursuits	54
Chemists	9
Clergyman	1
Civil, Mechanical, Electrical and Mining Engineers	39
Draftsmen	5
Graduate Students	4
Lawyers	5
Manufactures and Mechanics	17
Mining	6
Physicians	13
Teachers	30
Unknown	23
United States Army	2
United States Weather Bureau	6
Dead	17

‡Special student, New Hampshire College.

ALPHABETICAL LIST OF GRADUATES.

Adams, E. E., 1878.
Adams, G. E., 1885.
Adams, F. S., 1895.
Adair, R. K., 1877.
Alden, R. S., 1885.
Aldrich, H. C., 1876.
Aldrich, W. H., 1875.
Aldrich, T. E., 1881.
Andrews, H. P., 1900.
Angier, W. E., 1885.
Arnold, E. F., 1883.
Ashton, L., 1904.
Bailey, C. H., 1879.
Bailey, E. A., 1885.
Baker, H. C., 1899.
Ballard, W. P., 1871.
Barker, P. L., 1892.
Barker, W. A., 1904.
Barnard, H. E., 1899.
Barnard, H. L., 1881.
Barney, H. W., 1897.
Bartlett, Miss C. A., 1897.
Bartlett, D. B., 1900.
Bartlett, E., 1872.
Bartlett, Miss M. B., 1897.
Batchelder, E. G. (2 year), 1904.
Batchelor, H. D., 1903.
Bickford, E. C., 1904.
Bickford, E. F., 1903.
Bickford, P. G., 1885.
Bigelow, F. L., 1883.
Birtwhistle, F. S., 1883.
Blodgett, C. N. (2 year), 1901.
*Boardman, G. J., 1881.
Boutwell, H. L., 1882.
Brew, G. R. (2 year), 1902.
Brierley, H. G. (2 year), 1903.
Brigham, E. L., 1876.
Brill, A. W., 1885.
Bristol, E. F., 1881.
Bristol, N. D., 1883.
Britton, F. C., 1895.
Britton, W. E., 1893.
*Brooks, H., 1877.
Brooks, P. C., 1885.
Brown, B. S., 1894.
Brown, F. R., 1903.
Bryant, F. J., 1893.
Buck, W. F., 1897.
Bugbee, D. J., 1882.
Burbeck, E. W., 1903.
Burleigh, A. T., 1881.
Burleigh, R. F., 1882.
Burnham, Miss F., 1900.
Butterfield, J. W., 1876.
*Butterfield, R. C., 1898.
Buzzell, Miss H., 1898.
Calderwood, H. H., 1901.
Campbell, P. A., 1904.
Carpenter, L. J., 1882
*Carr, M. B., 1888.
Carson, J. W., 1877.
Caverno, Miss B. E., 1898.
Chamberlin, A. F., 1876.
Chapin, R. C., 1879.
Chesley, J. H., 1905.
*Chubert, C. O., 1877.
Clement, H. E., 1899.
Colby, F. H., 1889.
Colby, I. A., 1899.
Colburn, A. W., 1897.
Cole, E. G., 1891.
Comings, Miss C. L., 1897.
Comings, F. P., 1883.

*Dead.

*Comings, Miss M. E., 1897.
Corbett, B. A., 1898.
Courser, C. H., 1900.
Cragin, L. M., 1879.
Cross, A. B., 1876.
*Cummings, E. S., 1884.
Currier, W. S., 1887.
Curtis, F. P., 1875.
Davis, E. G., 1903.
Davis, F. A., 1886.
Davis, F. C., 1884.
Davis, H. G., 1888.
Dennett, I. L., 1897.
Dewey, E. P., 1882.
Dodge, C. O., 1905.
Doe, Miss Mary, 1902.
Dorr, Miss A. E., 1901.
Dunn, A. G. (2 year), 1905.
Durell, F. J. (2 year), 1900.
Durgin, A. C., 1898.
*Edwards, C. A., 1877.
Eldredge, F. E., 1873.
Elliott, H. A. (2 year), 1900.
Ely, F. D., 1881.
Emerson, F. J., 1885.
Emerson, F. V., 1875.
Emery, S. E., 1881.
Evans, H. W., 1901.
Everett, R. M., 1891.
Farr, C. W. 1904 (2 year), 1902.
Farwell, H. G., 1901.
*Flint, W. F., 1877.
Flint, W. P. (2 year), 1904.
Follansbee, F. H., 1883.
Foord, J. A., 1898.
Forristall, E. H., 1897.
Foster, S. M., 1884.
Foye, Miss B. M., 1900.
French, A. C., 1883.
Fuller, F. D., 1892.
Fullerton, J. W., 1898.
Gay, J. E., 1883.
Gerrish, E. C., 1888.
Gillis, L. C., 1889.
Gilmartin, E. W., 1902.
Given, A., 1898.
Goodrich, J. E., 1904.
Gowen, Miss E. G., 1901.
Gowing, H. N. (2 year), 1905.
Gunn, F. W., 1894.
Hall, C. C., 1877.
Hancock, E. H., 1898.
Hardy, A. W., 1887.
Hardy, C. W., 1875.
Hardy, M. F., 1874.
Harvey, J. E., 1886.
Hayden, S. B., 1905.
Hayden, W. D. F., 1899.
Hayes, H. L., 1905.
Hayes, L. D., 1897.
Hayes, Miss M. L., 1898.
Hayes, W. C., 1905.
Hazen, A., 1885.
Hazen, C. H., 1881.
Hazen, W. N., 1888.
Heath, F. H., 1905.
Henry, J. G., 1877.
Hewitt, C. E., 1893.
Hill, G. H., 1904.
Hill, H. E., 1894.
Hills, E. A. (2 year), 1900.
Hills, G. F. (2 year), 1902.
Hirakawa, T., 1898.
Knight, H. N., 1905.
*Hollister, C. P., 1877.
Holman, G. M., 1877.
*Holmes, N. C., 1879.
Hood, C. H., 1880.
Horton, F. L., 1899.
Hough, A. B., 1892.
Howe, F. W., 1894.
Hubbard, C. A., 1877.
Hubbard, C. L., 1893.
Hunt, C. A., 1901.
Hunt, J. N., 1897.
Hunt, W. E., 1899.
*Hutchinson, L. J., 1889.

*Dead.

James, O. M., 1893.
Jenkins, E. D., 1897.
Jewell, H., 1875.
Jewett, J. Y., 1890.
Jewett, E. P., 1901.
Kelley, E. D., 1883.
Kendall, J. C., 1902.
Kenney, L. H., 1899.
Keown, R. McA., 1901.
Kimball, H. H., 1884.
Kimball, W. W., 1876.
*Kilburn, E., 1878.
Kittredge, L. H., 1896.
Knowles, A. C. (2 year), 1900.
Laton, T. J., 1904.
*Leavitt, C. O., 1875.
Lee, H. M., 1902.
Livermore, A. A., 1902.
Loveland, G. A., 1882.
Lunt, R. L., 1904.
Lyon, E. E., 1901.
Mann, M. B., 1884.
Manning, G. G. (2 year), 1903.
Mark, Miss G. A., 1899.
*McGregor, J. L., 1875.
Marston, F. P., 1881.
Mason, J. W., 1882.
Mason, W., 1897.
Martin, C. W. (2 year), 1898.
Mathes, C. E. P., 1900.
Mathes, H. C., 1898.
Megrath, W. A., 1881.
Merrill, A. R., 1904.
Merrill, G. E., 1902.
Moore, G. M., 1884.
Moore, H. F., 1898.
Moreton, J. W., 1905.
Morgan, A. B., 1883.
Morgan, G. A., 1898.
Mudgett, O. D., 1905.
Mullins, G. M., 1885.
Nelson, E. E., 1900.
Nichols, H. A., 1882.
Nixon, J. H. (2 year), 1903.
Norcross, A. Z., 1899.
Norris, J. L., 1889.
Norris, Z. A., 1884.
O'Gara, E. D., 1888.
Parker, D. D., 1876.
Parker, F. C., 1879.
Payne, C. A., 1902.
Pearson, R. H. (2 year), 1900.
Peck, E., 1875.
Penneo, G. J., 1901.
Perkins, L., 1871.
Pettee, Miss A., 1900.
Pettee, H. J., 1905.
Pike, A. M., 1905.
Porter, G. E., 1888.
Preston, J. F., 1890.
Putney, F. S., 1905.
Putney, H. N., 1899.
Quimby, W. E. (2 year), 1902.
Ramsey, I. W., 1875.
Randall, J. L., 1905.
Record, C. E., 1878.
Richardson, H. P., 1898.
Richardson, S. A., 1904.
Robertson, Miss M. L., 1900.
Robinson, W. O., 1905.
Rollins, R. H., 1903.
Ruevsky, B. S., 1886.
Runlett, E. P., 1902.
Runlett, H. M., 1901.
Russell, H. U., 1905.
Sanborn, E. Q., 1890.
Sanborn, F. D., 1898.
Sanborn, G. A., 1887.
Sanders, C. H., 1871.
Sargent, G. J., 1888.
Savage, E. S., 1905.
*Sawyer, H. A., 1874.
Savage, H. N., 1887.
Scott, C. W. E., 1889.
Seward, O. L., 1875.
Shaw, R. H., 1897.
Shipley, W. N., 1900.

*Dead.

Shurbert, H. M. (2 year), 1904.
Simpson, Miss E. L., 1899.
Slack, C. I., 1890.
Smith, A. W., 1893.
Smith, F. W., 1898.
Smith, J. F., 1873.
Smith, J. W., 1888.
Stanton, F. T., 1881.
Stewart, M. A., 1903.
Stickney, V. H., 1881.
Stillings, C. E., 1900.
Stone, D. E., 1889.
Stone, E. M., 1892.
Stone, E. P., 1891.
Stratton, L. C. (2 year), 1897.
Straw, A. E., 1901.
Sullivan, A. L., 1902.
Swain, R. F. (2 year), 1903.
Swanson, Miss C. C., 1905.
Tenney, W. P. (2 year), 1902.
Thompson, E. C., 1884.
*Thompson, F. E., 1882.
Thurber, M. F., 1886.
Tinkham, F. A., 1905.
Tolles, B. D., 1898.
Trow, C. A., 1895.
Tucker, C. H., 1873.
Verder, H. D. (2 year), 1901.
Vickery, C. W., 1897.
Waldron, B. L., 1887.
Walker, G. E., 1888.
Wallace, S. A., 1881.
Washburn, F., 1889.
Wason, E. H., 1886.
Watson, D. G., 1903.
Weeks, T. N. (2 year), 1902.
Wheeler, C. A., 1877.
Wheeler, D. A., 1897.
Wheeler, G. H. (2 year), 1898.
White, F. A., 1872.
White, M. J., 1903.
Whitcher, G. H., 1881.
Whittemore, E., 1877.
Whittemore, E. S., 1897.
Whittier, R. E. (2 year), 1902.
Whittier, W. L., 1883.
Wilkins, G. H., 1879.
Willard, E. M., 1875.
Wilson, E. C. (2 year), 1902.
Wilson, J. E., 1900.
Wood, A. H., 1885.
Wood, G. P., 1886.
Woodward, C. M., 1883.
Wright, R. M., 1900.

* Dead.

SPECIMEN ENTRANCE EXAMINATON PAPERS FOR FOUR-YEAR COURSES.

ALGEBRA.

1. Define algebra, quantity, coefficient, exponent. Explain positive and negative quantities. Give the signification of fractional and negative exponents. Illustrate.

2. Add $\frac{3}{5}ax^{\frac{1}{2}} - a\sqrt{x}$ and $3bx^2 - \frac{2}{3}ax^{\frac{1}{2}} + 4b$.

3. Multiply:

$(-4ab)$, $(3\sqrt{ab})$, $(-\sqrt{-ab})$, $(3\sqrt{-ab})$, $(-a\sqrt{b})$, $(\sqrt{ab})$.

4. Find the prime factors of x^6+y^6, x^{-1}, $-y^{-6}$, $x^{2m}+x^m-2$.

5. Reduce $\frac{1}{a^{\frac{1}{3}}b^{\frac{1}{4}}c^{\frac{2}{7}}}$, $\frac{1}{\sqrt{a+\sqrt{b}}}$, $\frac{1}{a^{\frac{1}{2}}+b^{\frac{1}{5}}}$ to equivalent fractions having rational denominators.

6. Solve for x and y $\frac{2}{ax} + \frac{3}{by} = 5$ and $\frac{5}{ax} - \frac{3}{by} =$

7. $(x-y)^5$, $(\frac{2}{5}x^{\frac{1}{3}}y^{\frac{1}{2}})^{\frac{1}{3}}$, $(x-2a+3a^2)^2$. Perform operations indicated.

8. $3ax^2 - 2x + 3b = 0$. Solve for x.

9. Insert two arithmetical means between c and d.

10. A crew can row a miles in b hours down stream, and c miles in d hours against the stream. Find the rate in miles per hour of the current, and of the crew in still water.

ARITHMETIC.

1. Define arithmetic, fraction, per cent., interest, proportion, decimal.

2. From $3\frac{5}{7}$ take $1\frac{1}{3} + 1\frac{3}{7}$.

3. $3.014 + 27.900 \div .047$.

4. $\frac{\frac{6}{7}}{\frac{5}{8}} \times \frac{4}{3} \div \frac{6}{11}$.

5. Two men engage in business. One puts in $1,000 for 12 months; the other $2,000 for 15 months. They gain $500. How shall it be divided between them?

6. Find the simple, annual and compound interest on $1,200 for 3 years, 2 months and 7 days, at 6 per cent.

7. If 2 men in 3 days can cut 10 acres of grass, in how many days can 3 men cut 8 acres under same conditions?

8. Find square root of 31407.296.

9. Define meter, gram, litre, stere.

10. A box is 2 meters long, 1.5 meters wide, and 5 decimeters high. What is its capacity in litres?

BOTANY.

1. Describe a germinating seed that you have studied, as to seed coats, parts of embryo and presence of albumen or endosperm.

2. What are the three principal parts of a plant, and what does each do for the plant?

3. Describe the form, structure and reproduction of a particular cryptogamous, or flowerless, plant.

4. Define node, internode, petiole, peduncle, stipule, bract, axil of leaf, compound leaf.

5. What are the following and what part does each play in the life of the plant: chlorophyll, stoma, epidermis, root-hair, protoplasm?

6. What is the difference between a fruit and a seed?

7. Describe an exogenous stem as seen in cross-section. How does it differ from an endogenous stem?

8. Give the meaning of the following as applied to flowers: perfect, monœcious, hypogynous, polypetalous, receptacle.

9. Name five of the earliest blooming plants of New Hampshire and five which have their flowers in catkins.

ENGLISH.

The composition must be correct in spelling, grammar and punctuation.

I.

Select any *four* of the following topics, and write a short composition on each:

1. The Speech of Nestor.
2. Priam in the Tent of Achilles.
3. The Story of the Caskets.
4. Sir Roger at Church.
5. Characteristics of Dr. Primrose.
6. The Return of the Knight.
7. The Robbery of Silas Marner.

II.

Omit *one.*

1. Macbeth and Lady Macbeth compared.
2. The supernatural in "Comus."
3. From the standpoint of Macaulay, compare Milton and Addison.

This part of the examination presupposes the thorough study of each of the works named in this division. In addition the candidate may be required to answer questions involving the essentials of English grammar and composition. Inability to answer such questions will be considered a sufficient ground for refusing admission.

FRENCH.

1. (*a*) Synopsis: First person singular, *vouloir;* third singular, *aller;* third plural, *finir.* (*b*) Principal parts, *faire, venir, mettre, voir, prendre.*

2. Translate: (1) Have you given him any money? (2) This book is better than mine. (3) They lost their mother a week ago. (4) I have no sugar. (5) Give me this pen, if you please. (6) I shall see him tomorrow and he will

give it to me. (7) I fear that you will lose the money which I have given to you. (8) She has gone to Boston today, but she will be in Durham tomorrow. (9) The woman whom we have seen in the garden is very young. (10) He arrived in America June 4, 1899. (Write out the date.)

3. Translation at sight.

4. Translate: (a) Il parlait encore quand il vit la flamme du fusil d' Orlanduccio, et presque en même temps un second coup partit à sa gauche, de l' autre coté du sentier, tiré par un homme qu'il n'avait point aperçu et qu 'il ajustait posté derrière un autre mur. Les deux balles l' atteignirent: l'une, celle d' Orlanduccio, lui traversa le bras gauche, qu'il lui présentait en le couchant en joue; l'autre le frappa à la poitrine, déchira son habit, mais, recontrant heureusement la lame de son stylet, s'aplatit dessus et ne lui fit qu'une contusion légère. Le bras gauche d'Orso tomba immobile le long de sa cuisse, et le canon de son fusil s'abaissa un instant; mais il le releva aussitôt, et, dirigeant son arme de sa seule main droite, il fit feu sur Orlanduccio. La tête de son ennemi, qu'il ne découvrait que jusqu'aux yeux, disparut derrière le mur. La fumée sortie de son arme montait lentement vers le ciel; aucun mouvement derrière le mur, pas le plus léger bruit. Sans la douleur qu'il ressentait au bras, il aurait pu croire que ces hommes sur qui il venait de tirer étaient des fantômes de son imagination. [Mérimée, Colomba.]

(b) Cela vient des nouveaux maîtres de Longueval, deux Américaines . . . Madame Scott et Miss Percival. Retenez bien leurs noms et priez pour elles ce soir.

Puis il se sauvait, sans attendre les remerciements; à travers les champs, à travers les bois, de hammeau en hameau, de chaumière, en chaumière, il allait, il allait, il allait. . . Une sorte de griserie lui montait au cerveau. Partout sur son passage, c'étaient des cris de joie et d'étonnement. Tous ces louis d'or tombaient, comme par miracle, dans ces pauvres mains habituées à recevoir de petites piéces de mon-

naie blanche. Le curé fit même des folies, des vraies folies; it était lancé, il ne se connaissait plus. Il donnait à ceux-la mêmes qui ne demandaient pas. [Halévy, L'Abbé Constantin.]

GERMAN.

1. (*a*) Principal parts of brechen, gehen, halten, lesen, schlagen. (*b*) Synopsis third person singular, singen.

2. Translate: (1) The boy's father is a count, and his mother is a princess. (2) Good, industrious children are the joy of their parents. (3) Does his sister give him the book? (4) The letter which you gave me is on the table. (5) Yesterday was the fourth of September, 1901. (6) The sun has set and the moon is rising. (7) Have you already forgotten what you promised? (8) If you had come, you would have heard good music. (9) I am obliged to go to Berlin, but I should like to go to Paris. (10) She told us that her husband was dead, and that she had no money.

3. Translate: (a) Wie er hinunter in das Hotel kam, hörte er die heftige Stimme eines der Kellner oder des Wirts und eine bittende Frauenstimme dazwischen; und als er, neugierig geworden, hinzutrat, um wenigstens zu sehen, was es dort gebe, bemerkte er eine junge, sehr einfach, aber sauber gekleidete Dame, deren Gesicht ihm merkwürdiger Weise bekannt vorkam, die sich schüchtern und mit groszen Thränen in den Augen gegen den ihr unverschämt gegenüberstehenden Oberkellner verteidigte.— [*Gerstaecker Irrfahrten.*]

(b) Zwei lange Jahre waren vergangen, die ersten Reformationskämpfe, viel schwere Tage waren an Breisach vorübergezogen, Hans hatte sich durch nichts beirren lassen, unverdrossen hatte er weiter gearbeitet, ohne nach rechts oder nach links zu schauen, und endlich in Sommer des Jahres 1526 erschien er auf dem Rathaus und erklärte das Werk als vollendet. [*Hillern, Hoeher, als die Kirche.*]

(a) Elisabeth setzte sich unter eine unberhängende Buche und lauschte aufmerksam nach allen Seiten; Reinhardt

sasz einige Schritte davon auf einem Baumstumpf und sah schweigend nach ihr hinüber. Die Sonne stand gerade über ihnen; es war glühende Mittagshitze; kleine goldglänzende, stahlblaue Fliegen standen flügelschwingend in der Luft; rings um sie her ein feines Schwirren und Summen, und manchmal hörte man tief im Walde das Hämmern der Spechte und das Kreischen der andern Waldvögel.—[*Storm, Immensee.*]

GRECIAN HISTORY.

1. Give an account of the voyage of the Argonauts.
2. Draw a map showing Asia Minor, Macedonia and the principal Grecian cities.
3. Locate and, with a sentence for each, describe the following: Bosphorus, Arcadia, Cyprus, Olympia, Syracuse, Thebes, Lesbos, Propontis, Salamis, Babylon.
4. Sketch the lives of the following: Pythagoras, Pisistratus, Tyrtæus, Lycurgus.
5. Give a brief account of the Peloponnesian War.
6. Give a brief account of the Expedition of the Ten Thousand.
7. Give an account of the life and work of Herodotus.
8. Explain the principles of the Stoics and of the Epicureans.

PHYSICAL GEOGRAPHY.

1. Is it now seed-time, or harvest-time in the Transvaal?
2. Is it now day, or night, in Manila?
3. Describe the climate of Havana, Pekin and Cape Nome.
4. State the causes of the variations in season, climate, day and night.
5. Describe the trade winds.
6. What ocean currents produce the fogs on the Grand Banks? Why?
7. What causes the high tides in the Bay of Fundy?
8. Describe the principal physical divisions of the United States.

9. Describe the largest river-system in the world.

10. Show the relationship between New Hampshire's physical features and the occupations of its people.

PHYSICS.

1. What is motion? Show how motion is purely relative. A pendulum at the highest point of its path is at rest; what has become of the energy it possessed when moving? Show by illustration that energy when transformed is not all available. In what two ways may we recognize a force? The mass of a given train is one million pounds; how much work must the engine do simply to get the train up to a speed of 30 miles an hour, regardless of resistance? A uniform straight lever, ten feet long, balances at a point three feet from one end; when 12 pounds are hung from this end, and an unknown weight from the other, find the unknown weight, if the lever itself weighs eight pounds.

2. Outline the accepted theory of heat. What is meant by the temperature of a body? Explain what occurs when a pond freezes over, and show how fish-life is preserved by this provision of nature. Explain conduction, convection and radiation of heat.

3. What relation is there between heat and light? What obvious distinction? How is the path of light revealed in a dark room? How much deeper is water immediately under a bather than it appears to be? Describe the appearance of water to one looking outward from the shore. Explain the decomposition of white light by a prism.

4. In what does sound have its origin? Explain the nature of the transmission of sound. Why can sounds often be heard farther at night than by day? Explain what is meant by the harmonics of a vibrating string.

5. Describe the mariner's compass. Why does not a freely floating magnetic needle move bodily toward the north magnetic pole? Explain how water may be decomposed by an electric current. Why are not birds on a telegraph wire killed by the passage of a current?

PLANE GEOMETRY.

1. Define equal, equivalent, parallel, perpendicular, parallelogram, trapezoid, mean proportion, third proportional, limit of a variable quantity. Give theorem of limits.

2. Theorem: If two parallels are cut by a transversal the alternate interior angles are equal.

3. The sum of the angles of any polygon is equal to two right angles taken as many times, less two, as the polygon has sides.

4. If the non-parallel sides of a trapezoid are equal, its diagonals are also equal.

5. If the number of sides of an inscribed polygon is even, the sum of the alternate angles is equal to as many right angles as the polygon has sides, less two.

6. If any two chords be drawn through a fixed point within a circle, the product of the segments of one chord is equal to the product of the segments of the other.

7. If two of the medians of a triangle are equal, the triangle is isosceles.

8. The number of diagonals of a polygon of b sides is how many?

ROMAN HISTORY.

1. What do we actually know about the early history of Rome?

2. What were the early Roman laws of debtor and creditor?

3. Give the history of the first Punic War.

4. Give a brief but comprehensive account of each of the following: Cæsar, Cicero, Catiline, Jugurtha, Sulla, Pyrrhus, Cleopatra, Mithridates, Vespasian.

5. Give an account of the founding of Constantinople.

6. State fully the causes of the decline of the Roman Empire.

7. Give the facts which bear upon Roman agriculture.

8. Locate and, with a sentence for each, describe the following: Pontus, Caucasus, Cyprus, Rhine, Rhone, Sicily, Adriatic, Armenia, Constantinople, Syracuse.

UNITED STATES HISTORY AND CONSTITUTION.

A.

Give full statement of collateral reading.

B.

1. Give an account of Coronado's expedition, stating the approximate time of it.

2. Give a brief account of Virginia during the Puritan supremacy in England; of Maryland; of Massachusetts.

3. What was done at the Albany congress of 1754? Who was the most important member? What plan was proposed? What objections were made? What results followed?

4. Give a brief account of each of the following, stating what great service he rendered to the United States: Thomas Paine, Samuel Adams, John Jay.

5. Explain the principal points about the Treaty of Ghent. What was done about the principal things that led to the war? Give the leading facts about the Hartford Convention.

6. Explain the principle involved and the importance of each of the following: Ordinance of 1787, Wilmot Proviso, Dred Scott Case.

7. Starting with 1789, explain when and how each addition has been made to the territory of the United States.

C.

1. State fully the provisions for amending the Constitution of the United States.

2. State fully the provisions for electing the president of the United States.

3. State the qualifications, the term and the election provisions for senators; for the members of the House of Representatives.

SPECIMEN ENTRANCE EXAMINATION FOR TWO-YEAR STUDENTS.

GEOGRAPHY.

1. Name and locate the capitals of the following states: New York, Arkansas, California, Iowa, Ohio, South Carolina, New Jersey and Utah.

2. Name the six largest cities of the United States and tell where they are located.

3. Name the five largest rivers of the United States and tell where they rise and where they empty.

4. Where are the following mountains: Adirondack, Sierra Nevada, Ozark, Wahsatch, Alleghany, Green and Blue Ridge?

5. Bound the following states: Georgia, Washington, Illinois and Vermont.

6. Through what bodies of water would you pass in going by steamboat from Pittsburgh to Chicago?

7. Describe the physical features of New England.

8. What is the area and population of New Hampshire?

9. In about what latitude and longitude is New Hampshire located?

10. Name the counties of New Hampshire and give their county seats.

ARITHMETIC.

1. Give tables for dry measure and square measure.

2. Multiply 18 and 2/3 by 4/15.

3. Divide 4.57683 by .0123.

4. How many tons of hay could be placed in a mow 14 feet square and 22 feet deep, assuming that a cubic foot of hay weighs 6 lbs?

5. What would be the cost of 2,660 lbs. of hay at $14 per ton?

6. How many apple trees could be set in a 6-acre orchard if the trees were placed 40 feet apart each way?

7. What would be the interest on $350 for 20 months at 6%?

8. How many cords in a pile of cord wood 68 feet long and 6 feet high?

9. A bushel contains 2,150 cubic inches; how many bushels of oats could be placed in a bin 6 feet wide, 5 feet deep and 12 feet long?

10. How many tons of silage could be placed in a round silo 14 feet in diameter and 30 feet deep, assuming that a cubic foot of silage weighs 40 lbs.?

ENGLISH.

1. Write a complete letter in answer to an advertisement, asking for a position.

2. Write a careful description of the appearance of the town from which you have come.

3. Define and illustrate the parts of speech.

4. Illustrate the use of the different marks of punctuation. What is a verbal noun, an infinitive, a noun in apposition?

5. Write, in 100 words, the story of the last interesting book that you have read.

HISTORY OF THE UNITED STATES.

1. (*a*) Give an account of the first settlement in Virginia. (*b*) Give an account of the first settlement in Massachusetts.

2. Give some account of the French and Indian War, including (*a*) causes, (*b*) campaign of 1755, (*c*) most important campaign, (*d*) political results that followed the war, (*e*) connection, if any, with American Revolution.

3. Name the presidents of the United States, stating approximately the years when each one was in office. Give

the political party of each one and some one important fact concerning his administration.

4. What were the causes of the Spanish-American War? What were the results?

5. What is the meaning of "sixteen to one"? What political parties exist at present? What change is proposed in election of United States senators?

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